REPORT NO. FAA-RD-78-29, V

LEVEL II

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STRUCTURAL AREA INSPECTION FREQUENCY EVALUATION (SAIFE)

Volume V. Results of Model Demonstration

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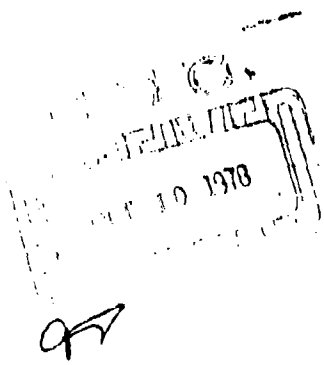

APRIL 1978
FINAL REPORT

Prepared for

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
Systems Research & Development Service
Washington, D.C. 20590

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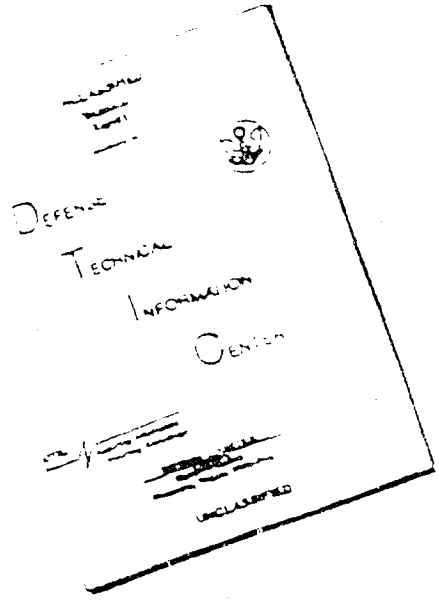

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Technical Report Documentation Page

1. Report No.	2. Government Accession No.	3. Recipient's Catalog No.
FAA-RD-78-29 V		

4. Title and Subtitle
STRUCTURAL AREA INSPECTION FREQUENCY EVALUATIONS
Volume V. Results of Model Demonstration

5. Report Date
April 1978

6. Performing Organization Code

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8. Performing Organization Report No.

9. Performing Organization Name and Address
Technology Incorporated
P.O. Box 3036, Overlook Branch
Dayton, Ohio 45431

10. Work Unit No. (TRAIS)

11. Contract or Grant No.
DOT-FA74WA-3493

12. Sponsoring Agency Name and Address
Department of Transportation
Federal Aviation Administration
Systems Research and Development Service
Washington, D.C. 20590

13. Type of Report and Period Covered
Final Report

14. Sponsoring Agency Code

15. Supplementary Notes

16. Abstract

To assist in the evaluation of proposed structural inspection programs for commercial jet transport aircraft, a logic was developed to simulate structural defects, failures, and inspections. This logic was incorporated in a computer program entitled Structural Area Inspection Frequency Evaluation (SAIFE). With the objective of quantifying the evaluation process currently used to establish and modify inspection intervals, SAIFE accounts for the following factors: (1) aircraft design analysis; (2) fatigue testing; (3) production, service, and corrosion defects; (4) probability of crack or corrosion detection; and (5) aircraft modification economics. As a five-volume document, this report covers the initial contract effort plus a subsequent parametric analysis as follows: Volume I (entitled Executive Summary) presents the SAIFE logic and documents the methodology for the decision-making processes in the simulation logic. Volume II (entitled Description of Simulation Logic) details the SAIFE simulation logic, presents the background data for the analytical functions and decision-making processes, and includes data for a typical simulation problem. Volume III (entitled Demonstration Input, Inspection Survey, and MRR Data) presents data tabulations derived from historical trends and design input data for a SAIFE demonstration problem. As the user's manual for the SAIFE computer program, Volume IV (entitled Software Documentation and User's Manual) contains detailed computer logic flow diagrams and a complete listing of the program which is written in SIMSCRIPT II.5. Volume V presents the results of the program application to a hypothetical aircraft and compares these results with the service experience of operational aircraft.

17. Key Words	18. Distribution Statement
aircraft experience simulation; aircraft inspection intervals; aircraft hazard rate and reliability; production, service, and corrosion defects; crack or corrosion detection probability; crack growth.	Document is available to the public through the National Technical Information Service, Springfield, Virginia 22151

19. Security Classif. (of this report)	20. Security Classif. (of this page)	21. No. of Pages	22. Price
UNCLASSIFIED	UNCLASSIFIED	156	

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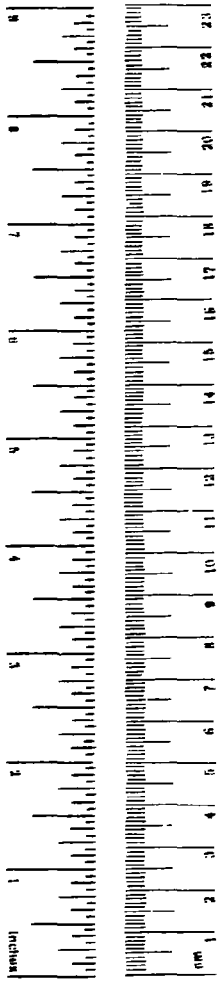
METRIC CONVERSION FACTORS

Approximate Conversions to Metric Measures

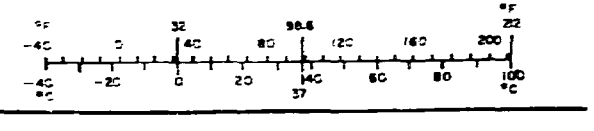
Symbol	When You Know	Multiply by	To Find	Symbol
		LENGTH		
in	inches	*2.5	centimeters	cm
ft	feet	30	centimeters	cm
yd	yards	0.9	meters	m
mi	miles	1.6	kilometers	km
		AREA		
in^2	square inches	6.5	square centimeters	cm^2
ft^2	square feet	0.09	square meters	m^2
yd^2	square yards	0.8	square meters	m^2
mi^2	square miles	2.6	square kilometers	km^2
	acres	0.4	hectares	ha
		MASS (weight)		
oz	ounces	28	grams	g
lb	pounds	0.45	kilograms	kg
	short tons (2000 lb)	0.9	tonnes	t
		VOLUME		
tsp	teaspoons	5	milliliters	ml
Tbsp	tablespoons	15	milliliters	ml
fl oz	fluid ounces	30	milliliters	ml
c	cups	0.24	liters	l
pt	pints	0.47	liters	l
qt	quarts	0.95	liters	l
gal	gallons	3.8	liters	l
ft^3	cubic feet	0.03	cubic meters	m^3
yd^3	cubic yards	0.76	cubic meters	m^3
		TEMPERATURE (exact)		
°F	Fahrenheit temperature	5/9 (after subtracting 32)	Celsius temperature	°C

*1 in = 2.54 exactly. For other exact conversions and more detailed tables, see NBS Misc. Publ. 286, Units of Weights and Measures, Price $2.25, SD Catalog No. C13.10:286.



Approximate Conversions from Metric Measures

Symbol	When You Know	Multiply by	To Find	Symbol
		LENGTH		
mm	millimeters	0.04	inches	in
cm	centimeters	0.4	inches	in
m	meters	3.3	feet	ft
m	meters	1.1	yards	yd
km	kilometers	0.6	miles	mi
		AREA		
cm^2	square centimeters	0.16	square inches	in^2
m^2	square meters	1.2	square yards	yd^2
km^2	square kilometers	0.4	square miles	mi^2
ha	hectares (10,000 m^2)	2.5	acres	
		MASS (weight)		
g	grams	0.035	ounces	oz
kg	kilograms	2.2	pounds	lb
t	tonnes (1000 kg)	1.1	short tons	
		VOLUME		
ml	milliliters	0.03	fluid ounces	fl oz
l	liters	2.1	pints	pt
l	liters	1.06	quarts	qt
l	liters	0.26	gallons	gal
m^3	cubic meters	35	cubic feet	ft^3
m^3	cubic meters	1.3	cubic yards	yd^3
		TEMPERATURE (exact)		
°C	Celsius temperature	9/5 then add 32.	Fahrenheit temperature	°F

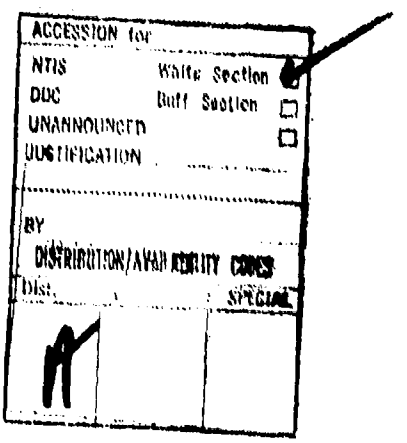


PREFACE

Technology Incorporated prepared this fifth volume of a five-volume report to document the simulation logic for the Structural Area Inspection Frequency Evaluation (SAIFE) in accordance with Article II, paragraph B of Contract DOT-FA74WA-3493. (Volume V along with Volume IV completes the requirements of Phase III of the contract.) The effort is sponsored by the Aircraft Safety and Noise Abatement Division, Systems Research and Development Service of the Federal Aviation Administration.

The principal Technology Incorporated personnel engaged on this program were Mr. Carter J. Dinkeloo, project engineer, who served as principal investigator; Mr. Martin S. Moran, research engineer, who developed the model for the SAIFE computer program; and Mr. Ronald I. Rockafellow, program manager.

The contract monitors for the FAA were Messrs. Herbert Spicer and Charles Troha of the Aircraft Safety and Noise Abatement Division. The technical monitor was Mr. Arnold E. Anderjaska of the Flight Standards Division.



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1. INTRODUCTION

It is the mutual goal of the FAA, airframe manufacturers, and air carriers to constantly improve the structural integrity and inspection efficiency of civil aircraft. The good safety record of U.S. air carriers indicates that the current process of establishing and modifying structural inspection programs has been successful. However, with the increasing size and complexity of second- and third-generation transport aircraft, there is a need to quantify more precisely the present subjective evaluation process which relies heavily on reliability analyses of the new design and on operational experience of similar aircraft.

Because of the extreme complexity of the evaluation process, a computer simulation of all critical aircraft service life aspects was judged the most rational means for quantifying the process more exactly. As a five-volume document, this report documents the resultant Structural Area Inspection Frequency Evaluation (SAIFE) simulation logic. SAIFE accounts for the following factors: (1) aircraft design analysis; (2) component and full-scale fatigue testing; (3) production, service, and corrosion defects; (4) probability of crack or corrosion detection; and (5) aircraft modification economics. It treats these factors in a logical sequence that realistically represents the procedure currently used to establish and modify inspection intervals. SAIFE is designed to provide a repeatable method for evaluating proposed inspection programs. However, it is not intended to supplant the Maintenance Review Board or the air carrier use of the Standard Operations Specification - Aircraft Maintenance.

As Volume V, this volume presents the results of a SAIFE demonstration, namely, the SAIFE application to a hypothetical aircraft, and compares the results with the service experience of operational aircraft. In this demonstration, all routines and events in the SAIFE program were exercised. The subsequent comparison revealed that the SAIFE output is realistic. The Appendix to this volume presents the results of the parametric study.

II. EVOLUTION OF DEMONSTRATION STAGES

1. Objectives

The SAIFE demonstration was designed to exercise all the events and routines in the software program and to permit determining whether each routine and event would function as intended. To this end, input data was formulated for a hypothetical aircraft, a hybrid of the B-747 and DC-10. The input data defined a fleet of aircraft with approximately the same production rate, fleet size, and service life as the B-747. This data also defined 1369 elements for each aircraft in the fleet. These elements included all the basic aircraft component types such as spars, stringers, and frames.

The demonstration was also intended to determine whether the SAIFE logic produced results which would be realistic when compared with the actual service history of jet transport aircraft. The realization of this second objective led to four separate stages during the demonstration task. The last three stages are characterized by changes in the SAIFE logic and/or alterations to the demonstration input data.

2. Initial Demonstration Stage

The initial demonstration started with the logic and input data submitted in the draft version of Volumes II and III of this report. The logic and input data had been reviewed prior to the start of the demonstration. However, because of the complexity of the logic and the volume of input data, several unanticipated problems were encountered when the initial demonstration output was reviewed. This review was conducted after 3-1/2 percent of the elements had been processed.

The most obvious problem was the extremely large number of cracks that were occurring on each element. An investigation of this problem revealed several contributing factors. The first factor was the large fleet being evaluated, 1000 aircraft, and the long service life, 60,000 flight hours, of each aircraft. Since the resultant total exposure of 60 million flight hours was much greater than that of any one fleet now in service, the corresponding number of cracks in the sample fleet appeared to be excessive. The obvious solution to this problem was to reduce the number of aircraft in the fleet and, thereby, reduce the total fleet flight hours.

A further review of the input data revealed that there were two additional factors causing the large number of cracks. Both of these factors contributed to an unrealistically low fatigue life for most elements. Of the latter two factors, the first was the relationship between the predicted and the actual fatigue life. Since the relationship used had been developed in the early 1960's, it was considered too conservative in the light of improved analysis techniques.

The second factor causing unrealistically low fatigue lives was the predicted lives used as input to the program. Although these lives were taken from data on wide-body aircraft, it was discovered that the design life rather than the predicted mean life had been used as input. When the mean life, which is much greater than the design life, was used as input, there was considerable increase in the fatigue lives of the elements.

During this review it was also determined that the SAIFE logic should include the effects of sampling inspections at overhaul (D-level). Because of the limited time available to make this change, it was determined that reducing the probability of defect detection would be the most effective means of simulating the sampling effect. In addition, an optional output format was needed to provide more specific information on the events that lead to structural failures. Such a format had been used early in the development program but was later omitted because of its excessive output volume. Consequently, it was decided that this format should be restored as an option along with the capability of selecting aircraft numbers and elements to reduce the volume.

3. Second Demonstration Stage

Prior to restarting the demonstration, the following changes were made to the logic and the input data:

a) The number of aircraft in the fleet was reduced from 1000 to 500.

b) The relationship between the predicted and the actual fatigue life was revised to yield statistically higher actual fatigue lives.

c) All predicted fatigue lives in the input data were changed from design life to predicted mean life.

d) The percent reduction in inspection intervals was increased appreciably to provide more realistic changes.

e) The lowest internal inspection level for each element was reviewed and, wherever required, revised to a higher level.

f) Logic to account for the effect of sampling inspections was added. This logic reduced the probability of defect detection in direct proportion to the percentage of the fleet being sampled.

After processing 30% of the elements, the output data was reviewed. This review revealed that the foregoing changes had successfully reduced the number of cracks but that the number of failures was still unrealistically high. This problem was attributed to two factors: First, the sampling logic for the D-level inspection had appreciably reduced the number of cracks

detected at this level. Second, the SAIFE logic did not allow a crack that originated internally to eventually appear externally. Therefore, the defect was never exposed to lower level inspections as it would be in a real world situation.

Consequently, it was decided to change the logic for the sampling inspections in order to improve the number of defects detected at overhaul but not to make any changes concerning the second factor at this time. It was felt that making too many modifications at one time would make it difficult to determine the effect of each modification on the output.

The review of the second demonstration stage output also revealed that the intervals for the C-level and D-level inspections were frequently as low as 10 flight hours. Since the program criteria for reducing inspection intervals are applied only to the C-level and D-level inspections, this resulted in C-level and D-level inspections occurring more often than either A-level or B-level inspections. To prevent this, it was decided that minimum C-level and D-level intervals should be established.

4. Third Demonstration Stage

Before again restarting the demonstration, the following changes were made to the logic:

a) The sampling logic was revised so that only designated aircraft were inspected. However, the probability of detecting large defects on these designated aircraft could approach 99%.

b) The interval for each of the inspection levels was set so that it could never be less than the initial interval of the preceding inspection level. For example, the D-level inspection interval could never be less than the initial C-level inspection interval, that is 1000 hours.

The results of these changes were apparent after processing only 13% of the elements. Although the minimum inspection interval produced the desired effect, the revision of the sampling inspection logic not only did not reduce the number of structural failures but, in fact, increased the number slightly.

Consequently, it was decided that the sampling inspection logic used in the second demonstration should be restored and that other logic be added so that cracks originating internally would eventually be detectable externally.

5. Final Demonstration Stage

Before restarting the demonstration for the final run, the following changes were made to the logic:

a) Cracks that originated internally were allowed to appear externally when the crack length equaled the critical length.

b) The sampling inspection logic used in the second demonstration stage was restored. This logic reduced the probability of defect detection in proportion to the percentage of the fleet being sampled.

c) The detailed output format that had been previously used was restored as an option for the final demonstration.

The demonstration output resulting from the final SAIFE logic and input data is detailed in the following section.

6. Revised Program Demonstration Stage

The appendix includes a complete description of the results and analysis from the parametric study.

III. DEMONSTRATION RESULTS

1. Analysis of the Final Demonstration Stage Output by Element Type

Since both the SAIFE demonstration output and the MRR/SDR service history data are extremely voluminous, this report presents only summary tables of the most pertinent facts. Table 1 lists the 21 element types analyzed in the SAIFE demonstration along with the following information:

a) Reference to a following table that contains more detailed, but still summarized, data, including the number of cracks and corrosions detected at each inspection level, the number of production and service defects, and the number of failures and fail-safe damage occurrences.

b) The ratio of the number of cracks detected in the SAIFE output to the number of cracks reported on MRR/SDR's.

c) The number of structural failures per million flight hours predicted by SAIFE.

d) The ratio of the number of first cracks occurring to the number of cracks detected by SAIFE.

When comparing the service history with the SAIFE demonstration output, four factors that affect the two data sets must be considered. The net result of these factors should be more defects in the SAIFE output than in the service history. Of these four factors, the first three increase the number of defects presented in the demonstration output, but the fourth decreases the number of defects. The four factors are as follows:

a) The MRR/SDR data represents generally the first half of the service life of aircraft because the data were collected from the U.S. air carrier fleet while the SAIFE output represents the entire service life of all the aircraft in a given fleet.

b) Not all aircraft defects are reported in the MRR/SDR documents.

c) The service history is based on narrow-body aircraft which have fewer elements than the hypothetical wide-body aircraft used in the demonstration.

d) Improved analysis techniques, design criteria, and manufacturing methods should result in fewer defects on the wide-body aircraft represented in the demonstration than on the narrow-body aircraft reported in the MRR/SDR's.

TABLE 1. SUMMARY OF SAIFE DEMONSTRATION RESULTS

Element Type	(a) Reference Table No.	(b) SAIFE Cracks/ MRR/SDR Cracks	(c) SAIFE Failures Per Million Flight Hours	(d) First Cracks Occurring/ Cracks Detected
Door frame	3	2.16	0.00	1.62
Window frame	4	32.06	0.00	1.66
Fuselage - main frame, bottom	5	0.87	0.00	9.47
- main frame, side	6	4.34	0.10	1.21
- main frame, top	7	0.53	0.00	10.13
- stringer, bottom	8	4.38	0.00	2.00
- stringer, side	9	2.22	0.07	2.15
- stringer, top	10	1.92	0.07	2.33
Wing - access frame	11	4.30	0.00	2.03
- spar, aft	12	0.46	0.00	1.38
- spar, center	13	13.85	0.00	1.84
- spar, forward	14	1.31	0.00	1.77
- stringer, aft	15	6.36	0.00	1.62
- stringer, center	16	8.94	0.00	1.55
- stringer, forward	17	4.83	0.00	1.61
Wing Center Section				
- stringer, aft	18	4.42	0.00	1.50
- stringer, center	19	1.90	0.00	1.78
- stringer, forward	20	0.15	0.00	1.57
- spanwise beam, aft	21	0.55	0.00	1.70
- spanwise beam, center	22	0.57	0.00	1.50
- spanwise beam, forward	23	0.13	0.00	1.57

In column (b) of Table 1, the ratios of the number of cracks detected in the SAIFE output to the number of cracks reported on MRR/SDR's vary widely. For 14 of the 21 element types, the ratios are greater than 1.00, which is the expected result in view of the four factors affecting the comparison of the two data sets.

Of these 14 element types, two have ratios larger than would be expected. For the first element type, WINDOW FRAMES, the fatigue lives in the SAIFE input were apparently underestimated, although the available manufacturers' data were reviewed thoroughly before the final demonstration was initiated. For the second element type, WING - SPAR, CENTER, the ratio is understandably high since only about 25% of the aircraft reported in the MRR/SDR's have center wing spars.

For the remaining seven element types, the ratios are less than 1.00. These ratios indicate that either the fatigue lives of the elements were overestimated or the lowest level of inspection was incorrect and consequently not enough cracks were detected by the SAIFE logic.

The failure data presented in column (c) of Table 1 is difficult to analyze because of the extremely low probability of a failure actually occurring in service. However, the complete lack of failures in the wing elements is notable. There have been at least two instances of wing spar failure on turboprop aircraft in the last 10 years. While the aircraft simulated by SAIFE was a turbofan and not a turboprop, the two designs are similar enough to expect that some wing failures would have occurred in the demonstration. Although the extremely low failure rate, one or two failures per 60 million flight hours, makes it impossible to determine whether or not the model is not functioning properly, several reviews of the model logic during the demonstration indicated that the model was performing as designed.

Finally, column (d) of Table 1 lists for each element type the ratio of the number of first cracks occurring to the number of cracks detected. This data cannot be compared with the service history since aircraft retired from service are rarely inspected to obtain this type of data. The ratios are between 1.50 and 2.33 except for two element types whose ratios are 9.47 and 10.13. These high ratios are attributed to a combination of three factors: relatively short fatigue lives, slow crack growth rate, and long critical crack length. This combination results in many cracks occurring during the service life of the aircraft; but since these cracks remain small for a long period of time, they are difficult to detect.

2. Analysis of the Final Demonstration Stage Output by Inspection Level

The number of cracks detected per million flight hours at each inspection level along with the associated percentage of total cracks is presented in Table 2 for both the SAIFE and the MRR/SDR data. The MRR/SDR service history shows that as the inspection level progresses from preflight to overhaul, the percentage of cracks detected increases. This progressive increase can be attributed to the larger portions of the aircraft being inspected and the increasing probability of detection associated with the higher inspection levels.

The SAIFE data shows a similar progression except for the overhaul inspection level. The decrease in the percentage of cracks detected at this level can be attributed to the method used in the SAIFE logic for conducting sampling inspections at the overhaul level. This method sets the maximum probability of detection equal to the sampling percentage; that is, if only 25% of the fleet is inspected at the overhaul inspection, then the maximum probability of detecting cracks, on a fleet-wide basis, is only 25% of the original maximum probability. The problem is complicated by the fact that the maximum probabilities of detection for the lower inspection levels are based on the total number of cracks detected and reported in MRR/SDR's. These cracks include those reported from overhaul inspections which were conducted on a sampling basis. It, therefore, appears that the effects of sampling inspections may be accounted for twice in SAIFE or, alternatively, that these effects were not correctly accounted for in the data for the lower level inspections.

Tables 3 through 23 compare the SAIFE demonstration results with the MRR/SDR data for each of the element types. Included in each table is the SAIFE summary output for that element type. In addition to the summary output, some of the tables contain SAIFE output for specific element stations.

Table 9 contains the SAIFE output for the FUS-STR-SID stations 1660, 1760, and 1940. Each of these stations on certain aircraft had cracks which grew to the fail-safe crack length during the service life of the aircraft. Since some aircraft had structural failures because of the cracks at stations 1660 and 1940, Table 9 includes the SAIFE "long list" output for both of these stations. This output tracks the structural history of aircraft with element failures.

Of all the FUS-STR-SID stations, station 1760 had the largest number of first crack initiations, namely 53, which can be attributed to its initially short ACTUAL AVERAGE FATIGUE LIFE. This short life (less than two times the aircraft service life) caused the production modification.

Table 10 contains the SAIFE output for the FUS-STR-TOP stations 1080, 1160, and 1760. Stations 1080 and 1160 on certain aircraft had cracks which grew to the fail-safe crack length during the service life of the aircraft. Table 10 also includes the SAIFE "long list" output for stations 1080 and 1300 since aircraft sustained structural failures because of cracks at these two stations. Station 1760 is included in Table 10 because it had the largest number of first crack initiations, namely 52. As above, this large number can be attributed to the initially short ACTUAL AVERAGE FATIGUE LIFE for station 1760. Again, this short life caused a production modification.

Table 16 contains the SAIFE output for the WNG-STR-LSC stations 0294 and 0669. Although the number of crack initiations at station 0294 was relatively small, this station had a sufficiently large crack occurring early enough in the simulation to prompt a retrofit structural modification because of economic considerations. Of all the WNG-STR-LSC element stations, station 0669 had the largest number of crack initiations, namely 64. Again, this large number can be attributed to the initial short fatigue life and caused a production modification.

3. Comparison of Results from the Four Demonstration Stage Outputs

Tables 24 through 27 compare the four demonstration stage outputs for four element types:

Element	Table
Door frame	24
Wing Center Section	
- spanwise beam, aft	25
- spanwise beam, center	26
- spanwise beam, forward	27

The comparison of the results of the first two demonstration outputs shows the effects of reducing the number of aircraft in the fleet by a factor of 2.0 and increasing the actual fatigue life by a factor of 3.3.

The comparison of the results of the second and final demonstration outputs shows the effects of introducing sampling inspections in the overhaul inspection logic and of allowing cracks that originated internally to appear externally and then become subject to inspection at a lower level.

IV. SUMMARY AND CONCLUSIONS

(1) With some minor refinement changes, the SAIFE model can be used by the FAA, air carriers, or aircraft manufacturers to conduct the following types of evaluations: (a) Design - the effects of changing fatigue life, corrosion resistance, or crack growth on design, (b) Cost - the effect of increasing cost on modification versus repair decisions, and (c) Operational - the relative effects of increasing the inspection interval or of changing the inspection of individual elements from one inspection level to another.

(2) Of the 21 element types summarized in the SAIFE demonstration output, 14 had ratios of SAIFE cracks to service history cracks that were within the expected range, that is, greater than 1.00. Of those 14 element types, 2 had ratios that were too high to be realistic. The remaining seven had ratios that were considerably less than 1.00.

(3) The SAIFE model is slightly unconservative in predicting failures; that is, it predicts too few structural failures.

(4) The SAIFE and the service history data for the percentage of cracks detected at each inspection level do not compare well. This discrepancy is primarily due to the method used in SAIFE to account for the sampling effects at the overhaul inspection.

(5) During the studies conducted for the preparation of Volume II, it was noted that phenomena related to corrosion, production defects, and service damage are not well documented in either MRR/SDR's or analytical studies and that they consequently require further study.

TABLE 2 COMPARISON OF CRACKS DETECTED AT EACH INSPECTION LEVEL PER MILLION FLIGHT HOURS

	SAIFE		MRR/SDR	
	Cracks Detected	% of Total	Cracks Detected	% of Total
Preflight	23.58	11.1	2.87	4.3
Service	56.97	26.7	7.93	11.8
Phase	80.26	37.6	10.94	16.3
Overhaul	26.15	12.3	24.21	36.1
Special	26.23	12.3	21.14	31.5
Total	213.19	100.0	67.09	100.0

TABLE 3. DEMONSTRATION RESULTS FOR DOOR FRAME

	Defects Per Million Flight Hours	
	SAIFE	MRR/SDR
Cracks Detected		
Preflight	0.53	0.16
Service	0.60	0.08
Phase	2.63	0.93
Overhaul	0.13	0.55
Special	0.00	0.08
Total	3.89	1.80
Corrosion Detected		
Preflight	0.47	0.00
Service	0.30	0.06
Phase	1.00	0.12
Overhaul	0.00	0.12
Special	0.00	0.00
Total	1.77	0.30
Fail-Safe Damage	0.00	0.02
Failures	0.00	----
Service Damage	0.27	0.15
Production Defects	0.00	0.00

TABLE 3 - Concluded

AIRCRAFT TYPE: HYBRID

NUMBER OF AIRCRAFT IN FLEET: 500 AIRCRAFT SERVICE LIFE: 60000 HOURS

SUMMARY OF STRUCTURAL ELEMENT: FUS-DOR-FRM

NUMBER AND TIME TO INITIATION OF AIRCRAFT DEFECTS

	FIRST CRACK	CORRUSION	SERVICE DAMAGE	PRODUCTION DEFECTS
OCCURRENCES	189	55	8	0
MIN(HRS)	436	165	436	-----
MAX(HRS)	59903	59175	55949	-----
AVG(HRS)	42731	28882	25816	-----

NUMBER AND LENGTH OF CRACKS DETECTED AT EACH LEVEL OF INSPECTION

	A-LEVEL	B-LEVEL	C-LEVEL	D-LEVEL	SPECIAL
OCCURRENCES	16	18	79	4	0
MIN(IN)	.69	.88	.34	.55	0.
MAX(IN)	1.67	1.62	2.40	1.65	0.
AVG(IN)	1.09	.86	.96	.99	0.

NUMBER AND AREA OF CORROSION DEFECTS DETECTED AT EACH LEVEL OF INSPECTION

	A-LEVEL	B-LEVEL	C-LEVEL	D-LEVEL	SPECIAL
OCCURRENCES	14	9	30	0	0
MIN(SQ.IN)	1.28	.98	.97	0.	0.
MAX(SQ.IN)	2.36	1.90	16.73	0.	0.
AVG(SQ.IN)	1.83	1.36	4.29	0.	0.
INSPECTION INTERVALS(HRS)					
INITIAL	25	200	1000	12000	
SHORTEST	25	200	1000	12000	
LONGEST	25	200	1953	23438	

NUMBER OF SPECIAL INSPECTIONS CONDUCTED: 0
NUMBER OF STRUCTURAL MODIFICATIONS: 2
NUMBER OF AIRCRAFT MODIFIED IN SERVICE: 0

STRUCTURAL FAILURES

AIRCRAFT NO.	FLT. HOURS	STA. NO.

RESIDUAL STRENGTH EQUALS FAIL-SAFE STRENGTH

AIRCRAFT NO.	FLT. HOURS	STA. NO.

TABLE 4. DEMONSTRATION RESULTS FOR WINDOW FRAME

	Defects Per Million Flight Hours	
	SAIFE	MRR/SDR
Cracks Detected		
Preflight	0.00	0.06
Service	5.17	0.06
Phase	21.40	0.12
Overhaul	3.20	0.67
Special	5.17	0.18
Total	34.94	1.09
Corrosion Detected		
Preflight	0.00	0.02
Service	0.03	0.00
Phase	0.20	0.02
Overhaul	0.03	0.02
Special	0.00	0.02
Total	0.26	0.08
Fail-Safe Damage	0.00	0.02
Failures	0.00	----
Service Damage	0.93	0.18
Production Defects	0.13	0.00

TABLE 4 - Concluded

AIRCRAFT TYPE: HYBRID

NUMBER OF AIRCRAFT IN FLEET: 500 AIRCRAFT SERVICE LIFE: 60000 HOURS

SUMMARY OF STRUCTURAL ELEMENT: FUS-MID-FRM

NUMBER AND TIME TO INITIATION OF AIRCRAFT DEFECTS

	FIRST CRACK	CORROSION	SERVICE DAMAGE	PRODUCTION DEFECTS
OCCURRENCES	1739	10	28	4
MIN(HRS)	1869	17482	2857	-----
MAX(HRS)	59985	58509	57992	-----
AVG(HRS)	43708	38366	30940	-----

NUMBER AND LENGTH OF CRACKS DETECTED AT EACH LEVEL OF INSPECTION

	A-LEVEL	B-LEVEL	C-LEVEL	D-LEVEL	SPECIAL
OCCURRENCES	0	155	682	96	155
MIN(IN)	0.	.48	.27	.17	.14
MAX(IN)	0.	1.88	3.26	2.23	2.50
AVG(IN)	0.	.88	.86	.84	.78

NUMBER AND AREA OF CORROSION DEFECTS DETECTED AT EACH LEVEL OF INSPECTION

	A-LEVEL	B-LEVEL	C-LEVEL	D-LEVEL	SPECIAL
OCCURRENCES	0	1	6	1	0
MIN(SQ.IN)	0.	1.28	1.52	6.39	0.
MAX(SQ.IN)	0.	1.28	5.65	6.39	0.
AVG(SQ.IN)	0.	1.28	2.73	6.39	0.

INSPECTION INTERVALS(HRS)				
INITIAL	25	200	1000	12000
SHORTEST	25	200	204	1677
LONGEST	25	200	2785	23438

NUMBER OF SPECIAL INSPECTIONS CONDUCTED: 218
NUMBER OF STRUCTURAL MODIFICATIONS: 9
NUMBER OF AIRCRAFT MODIFIED IN SERVICE: 0

STRUCTURAL FAILURES

AIRCRAFT NO.	FLT. HOURS	STA. NO.

RESIDUAL STRENGTH EQUALS FAIL-SAFE STRENGTH

AIRCRAFT NO.	FLT. HOURS	STA. NO.

TABLE 5. DEMONSTRATION RESULTS FOR FUSELAGE - MAIN FRAME, BOTTOM

	Defects Per Million Flight Hours	
	SAIFE	MRR/SDR
Cracks Detected		
Preflight	0.20	0.57
Service	0.23	0.67
Phase	0.20	0.47
Overhaul	2.53	1.53
Special	0.00	0.38
Total	3.16	3.62
Corrosion Detected		
Preflight	0.03	0.34
Service	0.00	1.10
Phase	0.00	0.41
Overhaul	0.10	1.99
Special	0.00	0.55
Total	0.13	4.39
Fail-Safe Damage	0.00	0.22
Failures	0.00	----
Service Damage	1.03	0.44
Production Defects	0.20	0.06

TABLE 5 - Concluded

AIRCRAFT TYPE: HYBRID

NUMBER OF AIRCRAFT IN FLEET: 500 AIRCRAFT SERVICE LIFE: 60000 HOURS

SUMMARY OF STRUCTURAL ELEMENT: FUS-MFR-BDT

NUMBER AND TIME TO INITIATION OF AIRCRAFT DEFECTS

	FIRST CRACK	CORROSION	SERVICE DAMAGE	PRODUCTION DEFECTS
OCCURRENCES	900	17	51	6
MIN(HRS)	849	9630	2615	-----
MAX(HRS)	59995	56941	59910	-----
AVG(HRS)	45376	34698	33513	-----

NUMBER AND LENGTH OF CRACKS DETECTED AT EACH LEVEL OF INSPECTION

	A-LEVEL	B-LEVEL	C-LEVEL	D-LEVEL	SPECIAL
OCCURRENCES	6	7	6	76	0
MIN(IN)	.59	.45	.38	.38	0.
MAX(IN)	.78	.69	.66	4.38	0.
AVG(IN)	.70	.61	.58	1.75	0.

NUMBER AND AREA OF CORROSION DEFECTS DETECTED AT EACH LEVEL OF INSPECTION

	A-LEVEL	B-LEVEL	C-LEVEL	D-LEVEL	SPECIAL
OCCURRENCES	1	0	0	3	0
MIN(SQ.IN)	1.93	0.	0.	10.69	0.
MAX(SQ.IN)	1.93	0.	0.	62.91	0.
AVG(SQ.IN)	1.93	0.	0.	40.37	0.
INSPECTION INTERVALS(HRS)					
INITIAL	25	200	1000	12000	
SHORTEST	25	200	1000	12000	
LONGEST	25	200	1953	23438	

NUMBER OF SPECIAL INSPECTIONS CONDUCTED: 0
NUMBER OF STRUCTURAL MODIFICATIONS: 2
NUMBER OF AIRCRAFT MODIFIED IN SERVICE: 0

STRUCTURAL FAILURES

AIRCRAFT NO.	FLT. HOURS	STA. NO.

RESIDUAL STRENGTH EQUALS FAIL-SAFE STRENGTH

AIRCRAFT NO.	FLT. HOURS	STA. NO.

TABLE 6. DEMONSTRATION RESULTS FOR FUSELAGE - MAIN FRAME, SIDE

	Defects Per Million Flight Hours	
	SAIFE	MRR/SDR
Cracks Detected		
Preflight	0.00	0.34
Service	6.70	0.69
Phase	9.00	0.76
Overhaul	4.97	3.57
Special	5.57	0.69
Total	26.24	6.05
Corrosion Detected		
Preflight	0.00	0.00
Service	0.00	0.07
Phase	0.03	0.07
Overhaul	0.13	0.54
Special	0.17	0.07
Total	0.33	0.75
Fail-Safe Damage	0.07	0.04
Failures	0.10	----
Service Damage	0.77	0.33
Production Defects	0.13	0.15

TABLE 6 - Concluded

AIRCRAFT TYPE: HYBRID

NUMBER OF AIRCRAFT IN FLEET: 300 AIRCRAFT SERVICE LIFE: 60000 HOURS

SUMMARY OF STRUCTURAL ELEMENT: FUS-MFD-SID

NUMBER AND TIME TO INITIATION OF AIRCRAFT DEFECTS

	FIRST CRACK	CORROSION	SERVICE DAMAGE	PRODUCTION DEFECTS
OCCURRENCES	552	16	23	4
MIN(HRS)	616	771	616	-----
MAX(HRS)	59997	59876	57971	-----
AVG(HRS)	43004	33506	26702	-----

NUMBER AND LENGTH OF CRACKS DETECTED AT EACH LEVEL OF INSPECTION

	A-LEVEL	B-LEVEL	C-LEVEL	D-LEVEL	SPECIAL
OCCURRENCES	0	201	270	149	167
MIN(IN)	0.	1.01	.62	.41	.18
MAX(IN)	0.	12.14	38.86	10.36	14.19
AVG(IN)	0.	10.02	10.65	4.90	5.46

NUMBER AND AREA OF CORROSION DEFECTS DETECTED AT EACH LEVEL OF INSPECTION

	A-LEVEL	B-LEVEL	C-LEVEL	D-LEVEL	SPECIAL
OCCURRENCES	0	0	1	6	5
MIN(SQ.IN)	0.	0.	1.89	9.67	1.59
MAX(SQ.IN)	0.	0.	1.89	21.60	35.37
AVG(SQ.IN)	0.	0.	1.89	16.63	21.51

INSPECTION INTERVALS(HRS)

INITIAL	25	200	1000	12000
SHORTEST	25	200	208	1433
LONGEST	25	200	2500	23038

NUMBER OF SPECIAL INSPECTIONS CONDUCTED: 238
NUMBER OF STRUCTURAL MODIFICATIONS: 5
NUMBER OF AIRCRAFT MODIFIED IN SERVICE: 0

STRUCTURAL FAILURES

AIRCRAFT NO.	FLT. HOURS	STA. NO.
292	37663	1920
371	51558	1920
408	57396	1920

RESIDUAL STRENGTH EQUALS FAIL-SAFE STRENGTH

AIRCRAFT NO.	FLT. HOURS	STA. NO.
292	45683	1920
371	49058	1920

TABLE 7. DEMONSTRATION RESULTS FOR FUSELAGE - MAIN FRAME, TOP

	Defects Per Million Flight Hours	
	SAIFE	MRR/SDR
Cracks Detected		
Preflight	0.00	0.00
Service	0.00	0.00
Phase	0.60	2.86
Overhaul	2.37	1.57
Special	0.00	1.14
Total	2.97	5.57
Corrosion Detected		
Preflight	0.00	0.00
Service	0.00	0.00
Phase	0.00	0.00
Overhaul	0.20	0.00
Special	0.00	0.00
Total	0.20	0.00
Fail-Safe Damage	0.00	0.00
Failures	0.00	----
Service Damage	1.03	0.02
Production Defects	0.20	0.15

TABLE 7 - Concluded

AIRCRAFT TYPE: HYBRID

NUMBER OF AIRCRAFT IN FLEET: 500 AIRCRAFT SERVICE LIFE: 60000 HOURS

SUMMARY OF STRUCTURAL ELEMENT: FUS-MER-TOP

NUMBER AND TIME TO INITIATION OF AIRCRAFT DEFECTS

	FIRST CRACK	CORROSION	SERVICE DAMAGE	PRODUCTION DEFECTS
OCCURRENCES	902	17	31	6
MIN(HRS)	255	9630	2615	-----
MAX(HRS)	59995	59991	59910	-----
AVG(HRS)	43867	38698	33513	-----

NUMBER AND LENGTH OF CRACKS DETECTED AT EACH LEVEL OF INSPECTION

	A-LEVEL	B-LEVEL	C-LEVEL	D-LEVEL	SPECIAL
OCCURRENCES	0	0	18	71	0
MIN(IN)	0.	0.	.32	.21	0.
MAX(IN)	0.	0.	1.47	2.99	0.
AVG(IN)	0.	0.	.88	1.48	0.

NUMBER AND AREA OF CORROSION DEFECTS DETECTED AT EACH LEVEL OF INSPECTION

	A-LEVEL	B-LEVEL	C-LEVEL	D-LEVEL	SPECIAL
OCCURRENCES	0	0	0	6	0
MIN(SQ.IN)	0.	0.	0.	14.08	0.
MAX(SQ.IN)	0.	0.	0.	48.86	0.
AVG(SQ.IN)	0.	0.	0.	23.68	0.
INSPECTION INTERVALS(HRS)					
INITIAL	25	200	1000	12000	
SHORTEST	25	200	688	8203	
LONGEST	25	200	1953	23438	

NUMBER OF SPECIAL INSPECTIONS CONDUCTED: 1
NUMBER OF STRUCTURAL MODIFICATIONS: 2
NUMBER OF AIRCRAFT MODIFIED IN SERVICE: 0

STRUCTURAL FAILURES

AIRCRAFT NO.	FLT. HOURS	STA. NO.

RESIDUAL STRENGTH EQUALS FAIL-SAFE STRENGTH

AIRCRAFT NO.	FLT. HOURS	STA. NO.

TABLE 8. DEMONSTRATION RESULTS FOR FUSELAGE - STRINGER, BOTTOM

	Defects Per Million Flight Hours	
	SAIFE	MRR/SDR
Cracks Detected		
Preflight	3.63	0.57
Service	3.20	0.67
Phase	2.67	0.47
Overhaul	2.40	1.53
Special	3.97	0.38
Total	15.87	3.62
Corrosion Detected		
Preflight	3.13	0.34
Service	2.07	1.10
Phase	0.77	0.41
Overhaul	1.17	1.99
Special	0.57	0.55
Total	7.71	4.39
Fail-Safe Damage	0.00	0.22
Failures	0.00	----
Service Damage	0.63	0.44
Production Defects	0.13	0.06

TABLE 8 - Concluded

AIRCRAFT TYPE: HYBRID

NUMBER OF AIRCRAFT IN FLEET: 500 AIRCRAFT SERVICE LIFE: 60000 HOURS

SUMMARY OF STRUCTURAL ELEMENT: FUS-STR-RGT

NUMBER AND TIME TO INITIATION OF AIRCRAFT DEFECTS

	FIRST CRACK	CORROSION	SERVICE DAMAGE	PRODUCTION DEFECTS
OCCURRENCES	950	275	19	4
MIN(HRS)	928	47	928	-----
MAX(HRS)	59997	59870	58241	-----
AVG(HRS)	43183	28572	27969	-----

NUMBER AND LENGTH OF CRACKS DETECTED AT EACH LEVEL OF INSPECTION

	A-LEVEL	B-LEVEL	C-LEVEL	D-LEVEL	SPECIAL
OCCURRENCES	109	96	80	72	119
MIN(IN)	.57	.44	.27	.26	.13
MAX(IN)	6.06	5.49	3.70	2.78	3.07
AVG(IN)	1.85	1.15	.60	1.26	1.38

NUMBER AND AREA OF CORROSION DEFECTS DETECTED AT EACH LEVEL OF INSPECTION

	A-LEVEL	B-LEVEL	C-LEVEL	D-LEVEL	SPECIAL
OCCURRENCES	98	62	23	35	17
MIN(SQ.IN)	1.03	.86	.84	.93	1.58
MAX(SQ.IN)	3.88	3.00	3.08	128.50	59.67
AVG(SQ.IN)	1.73	1.59	1.66	80.81	28.20
INSPECTION INTERVALS(HRS)					
INITIAL	25	200	1000	12000	
SHORTEST	25	200	204	1570	
LONGEST	25	200	1953	23438	

NUMBER OF SPECIAL INSPECTIONS CONDUCTED: 78
NUMBER OF STRUCTURAL MODIFICATIONS: 5
NUMBER OF AIRCRAFT MODIFIED IN SERVICE: 0

STRUCTURAL FAILURES

AIRCRAFT NO.	FLT. HOURS	STA. NO.

RESIDUAL STRENGTH EQUALS FAIL-SAFE STRENGTH

AIRCRAFT NO.	FLT. HOURS	STA. NO.

TABLE 9. DEMONSTRATION RESULTS FOR FUSELAGE - STRINGER, SIDE

	Defects Per Million Flight Hours	
	SAIFE	MRR/SDR
Cracks Detected		
Preflight	0.00	0.34
Service	3.33	0.69
Phase	4.40	0.76
Overhaul	2.87	3.57
Special	3.33	0.69
Total	13.43	6.05
Corrosion Detected		
Preflight	0.00	0.00
Service	0.47	0.07
Phase	0.97	0.07
Overhaul	0.23	0.54
Special	0.20	0.07
Total	1.87	0.75
Fail-Safe Damage	0.37	0.04
Failures	0.07	----
Service Damage	0.63	0.33
Production Defects	0.30	0.15

TABLE 9 - Continued

AIRCRAFT TYPE: HYBRID

NUMBER OF AIRCRAFT IN FLEET: 500 AIRCRAFT SERVICE LIFE: 60000 HOURS

SUMMARY OF STRUCTURAL ELEMENT: FUS-STR-SID

NUMBER AND TIME TO INITIATION OF AIRCRAFT DEFECTS

	FIRST CRACK	CORROSION	SERVICE DAMAGE	PRODUCTION DEFECTS
OCCURRENCES	500	69	19	10
MIN(HRS)	1497	5058	3922	-----
MAX(HRS)	59995	57923	57792	-----
AVG(HRS)	43455	38642	34896	-----

NUMBER AND LENGTH OF CRACKS DETECTED AT EACH LEVEL OF INSPECTION

	A-LEVEL	B-LEVEL	C-LEVEL	D-LEVEL	SPECIAL
OCCURRENCES	0	100	132	86	100
MIN(IN)	0.	.42	.31	.30	.14
MAX(IN)	0.	10.71	38.10	4.66	4.77
AVG(IN)	0.	1.96	5.03	1.42	1.27

NUMBER AND AREA OF CORROSION DEFECTS DETECTED AT EACH LEVEL OF INSPECTION

	A-LEVEL	B-LEVEL	C-LEVEL	D-LEVEL	SPECIAL
OCCURRENCES	0	14	29	7	6
MIN(SQ.IN)	0.	.66	1.02	4.95	4.92
MAX(SQ.IN)	0.	3.30	14.15	73.03	45.61
AVG(SQ.IN)	0.	1.85	4.43	19.99	30.83

INSPECTION INTERVALS(HRS)				
INITIAL	25	200	1000	12000
SHORTEST	25	200	200	1570
LONGEST	25	200	2785	23438

NUMBER OF SPECIAL INSPECTIONS CONDUCTED: 100
NUMBER OF STRUCTURAL MODIFICATIONS: 2
NUMBER OF AIRCRAFT MODIFIED IN SERVICE: 0

STRUCTURAL FAILURES

AIRCRAFT NO.	FLT. HOURS	STA. NO.
550	49016	1660
323	56028	1980

RESIDUAL STRENGTH EQUALS FAIL-SAFE STRENGTH

AIRCRAFT NO.	FLT. HOURS	STA. NO.
490	42917	0200
196	51619	0460
350	46088	1660
28	29827	1720
248	55026	1740
34	48770	1760
174	48680	1820
87	56750	1860
325	55284	1980
270	57010	2160
103	44736	2240

TABLE 9 - Continued

AIRCRAFT TYPE: HYBRID

NUMBER OF AIRCRAFT IN FLEET: 500 AIRCRAFT SERVICE LIFE: 60000 HOURS

STRUCTURAL ELEMENT: FUS-STR-SID-1660

PREDICTED AVERAGE FATIGUE LIFE: 177600 HOURS ACTUAL AVERAGE FATIGUE LIFE: 183281 HOURS

NUMBER AND TIME TO INITIATION OF AIRCRAFT DEFECTS

	FIRST CRACK	CORROSION	SERVICE DAMAGE	PRODUCTION DEFECTS
OCCURRENCES	14	2	0	0
MIN(HRS)	19415	18599	0	-----
MAX(HRS)	57825	39122	0	-----
AVG(HRS)	47604	28861	0	-----

NUMBER AND LENGTH OF CRACKS DETECTED AT EACH LEVEL OF INSPECTION

	A-LEVEL	B-LEVEL	C-LEVEL	D-LEVEL	SPECIAL
OCCURRENCES	0	0	0	1	0
MIN(IN)	0.	0.	0.	1.80	0.
MAX(IN)	0.	0.	0.	1.80	0.
AVG(IN)	0.	0.	0.	1.80	0.

NUMBER AND AREA OF CORROSION DEFECTS DETECTED AT EACH LEVEL OF INSPECTION

	A-LEVEL	B-LEVEL	C-LEVEL	D-LEVEL	SPECIAL
OCCURRENCES	0	0	2	0	0
MIN(SQ.IN)	0.	0.	4.60	0.	0.
MAX(SQ.IN)	0.	0.	4.91	0.	0.
AVG(SQ.IN)	0.	0.	4.76	0.	0.

INSPECTION INTERVALS(HRS)

INITIAL	25	200	1000	12000
2	25	200	1250	15000
3	25	200	1563	18750
4	25	200	1953	23438
5	25	200	684	8203
6	25	200	854	10254

NUMBER OF SPECIAL INSPECTIONS CONDUCTED: 1
NUMBER OF STRUCTURAL MODIFICATIONS: 0
FINAL ACTUAL AVERAGE MODIFIED FATIGUE LIFE: 183281 HOURS
NUMBER OF AIRCRAFT MODIFIED IN SERVICE: 0

STRUCTURAL FAILURES

AIRCRAFT NO.	FLT. HOURS
350	49016

RESIDUAL STRENGTH EQUALS FAIL-SAFE STRENGTH

AIRCRAFT NO.	FLT. HOURS
350	46088

TABLE 9 - Continued

AIRCRAFT TYPE: HYBRID

NUMBER OF AIRCRAFT IN FLEET: 500 AIRCRAFT SERVICE LIFE: 60000 HOURS

STRUCTURAL ELEMENT: FUS-STR-SID-1760

PREDICTED AVERAGE FATIGUE LIFE: 175380 HOURS ACTUAL AVERAGE FATIGUE LIFE: 184352 HOURS

NUMBER AND TIME TO INITIATION OF AIRCRAFT DEFECTS

	FIRST CRACK	CORROSION	SERVICE DAMAGE	PRODUCTION DEFECTS
OCCURRENCES	53	0	1	0
MIN(HRS)	16166	0	28314	-----
MAX(HRS)	59995	0	28314	-----
AVG(HRS)	42214	0	28314	-----

NUMBER AND LENGTH OF CRACKS DETECTED AT EACH LEVEL OF INSPECTION

	A-LEVEL	B-LEVEL	C-LEVEL	D-LEVEL	SPECIAL
OCCURRENCES	0	0	0	12	11
MIN(IN)	0.	0.	.53	.35	.55
MAX(IN)	0.	0.	17.53	2.57	4.77
AVG(IN)	0.	0.	3.53	1.56	1.44

NUMBER AND AREA OF CORROSION DEFECTS DETECTED AT EACH LEVEL OF INSPECTION

	A-LEVEL	B-LEVEL	C-LEVEL	D-LEVEL	SPECIAL
OCCURRENCES	0	0	-	0	0
MIN(SQ.IN)	0.	0.	0.	0.	0.
MAX(SQ.IN)	0.	0.	0.	0.	0.
AVG(SQ.IN)	0.	0.	0.	0.	0.

TABLE 9 - Continued

AIRCRAFT TYPE: HYBRID

NUMBER OF AIRCRAFT IN FLEET: 500 AIRCRAFT SERVICE LIFE: 60000 HOURS

STRUCTURAL ELEMENT: FUS-STR-SID-1760

PREDICTED AVERAGE FATIGUE LIFE: 175380 HOURS ACTUAL AVERAGE FATIGUE LIFE: 104352 HOURS

INSPECTION INTERVALS(HRS)

INITIAL	25	200	1000	12000
2	25	200	1250	15000
3	25	200	1563	18750
4	25	200	1953	23438
5	25	200	684	8203
6	25	200	239	2871
7	25	200	299	3589
8	25	200	374	4486
9	25	200	467	5608
10	25	200	584	7010
11	25	200	730	8762
12	25	200	256	3067
13	25	200	319	3833
14	25	200	399	4792
15	25	200	399	1677
16	25	200	499	2096
17	25	200	624	2620
18	25	200	780	3276
19	25	200	975	4094
20	25	200	1219	5118
21	25	200	1523	6398
22	25	200	533	2239
23	25	200	666	2799

NUMBER OF SPECIAL INSPECTIONS CONDUCTED: 4
NUMBER OF STRUCTURAL MODIFICATIONS: 1
FINAL ACTUAL AVERAGE MODIFIED FATIGUE LIFE: 129189 HOURS
NUMBER OF AIRCRAFT MODIFIED IN SERVICE: 0

STRUCTURAL FAILURES

AIRCRAFT NO.	FLT. HOURS

RESIDUAL STRENGTH EQUALS FAIL-SAFE STRENGTH

AIRCRAFT NO.	FLT. HOURS
34	48770

TABLE 9 - Continued

AIRCRAFT TYPE: HYBRID

NUMBER OF AIRCRAFT IN FLEET: 500 AIRCRAFT SERVICE LIFE: 60000 HOURS

STRUCTURAL ELEMENT: FUS-STR-SID-1940

PREDICTED AVERAGE FATIGUE LIFE: 399600 HOURS ACTUAL AVERAGE FATIGUE LIFE: 377569 HOURS

NUMBER AND TIME TO INITIATION OF AIRCRAFT DEFECTS

	FIRST CRACK	CORROSION	SERVICE DAMAGE	PRODUCTION DEFECTS
OCCURRENCES	5	0	0	0
MIN(HRS)	29298	0	0	-----
MAX(HRS)	59345	0	0	-----
AVG(HRS)	48634	0	0	-----

NUMBER AND LENGTH OF CRACKS DETECTED AT EACH LEVEL OF INSPECTION

	A-LEVEL	B-LEVEL	C-LEVEL	D-LEVEL	SPECIAL
OCCURRENCES	0	0	0	0	0
MIN(IN)	0.	0.	0.	0.	0.
MAX(IN)	0.	0.	0.	0.	0.
AVG(IN)	0.	0.	0.	0.	0.

NUMBER AND AREA OF CORROSION DEFECTS DETECTED AT EACH LEVEL OF INSPECTION

	A-LEVEL	B-LEVEL	C-LEVEL	D-LEVEL	SPECIAL
OCCURRENCES	0	0	0	0	0
MIN(SQ.IN)	0.	0.	0.	0.	0.
MAX(SQ.IN)	0.	0.	0.	0.	0.
AVG(SQ.IN)	0.	0.	0.	0.	0.

INSPECTION INTERVALS(HRS)

INITIAL	25	200	1000	12000
2	25	200	1250	15000
3	25	200	1563	18750
4	25	200	1953	23438
5	25	200	2441	29273

NUMBER OF SPECIAL INSPECTIONS CONDUCTED: 1
NUMBER OF STRUCTURAL MODIFICATIONS: 0
FINAL ACTUAL AVERAGE MODIFIED FATIGUE LIFE: 377569 HOURS
NUMBER OF AIRCRAFT MODIFIED IN SERVICE: 0

STRUCTURAL FAILURES

AIRCRAFT NO.	FLT. HOURS
323	56028

RESIDUAL STRENGTH EQUALS FAIL-SAFE STRENGTH

AIRCRAFT NO.	FLT. HOURS
323	55284

TABLE 9 - Continued

AIRCRAFT TYPE: HYBRID

NUMBER OF AIRCRAFT IN FLEET: 500 AIRCRAFT SERVICE LIFE: 60000 HOURS

STRUCTURAL ELEMENT: FUS-STA-910-1660

PREDICTED AVERAGE FATIGUE LIFE: 177600 HOURS ACTUAL AVERAGE FATIGUE LIFE: 183281 HOURS

INITIAL INSPECTION INTERVALS

A-LEVEL 25 HOURS
B-LEVEL 200 HOURS
C-LEVEL 1000 HOURS
D-LEVEL 12000 HOURS

INSPECTION INTERVAL INCREASE IMPLEMENTED
C-LEVEL INTERVAL NOW 1250 HOURS
D-LEVEL INTERVAL NOW 15000 HOURS

INSPECTION INTERVAL INCREASE IMPLEMENTED
C-LEVEL INTERVAL NOW 1563 HOURS
D-LEVEL INTERVAL NOW 18750 HOURS

A/C NO. 350 ENTERS SERVICE 30050 HOURS PRIOR START OF SIMULATION

1ST CRACK INITIATION PROJECTED AT 19615 FLIGHT HOURS
2ND CRACK INITIATION PROJECTED AT 40850 FLIGHT HOURS
3RD CRACK INITIATION PROJECTED AT 184740 FLIGHT HOURS
SLOW CRACK GROWTH RATE = .000109 INCHES/HOUR
FAST CRACK GROWTH RATE = .000422 INCHES/HOUR

D-LEVEL INSPECTION PERFORMED ON A/C NO. 350 AT 12000 HOURS

INSPECTION INTERVAL INCREASE IMPLEMENTED
C-LEVEL INTERVAL NOW 1953 HOURS
D-LEVEL INTERVAL NOW 23438 HOURS

A/C NO. 350 EXPERIENCES 1ST CRACK INITIATION AT 19615 HOURS
CRACK INITIATED INTERNALLY
ELEMENT FAILURE PROJECTED AT 49016 FLIGHT HOURS

D-LEVEL INSPECTION PERFORMED ON A/C NO. 350 AT 24000 HOURS

A/C NO. 350 HAS INTERNAL FIRST CRACK BECOME EXTERNAL AT 2.76 INCHES AND 44693 FLIGHT HOURS

A/C NO. 350 REACHES FAIL-SAFE STRENGTH AT 46088 FLIGHT HOURS

D-LEVEL INSPECTION PERFORMED ON A/C NO. 350 AT 47438 HOURS

A/C NO. 350 EXPERIENCES ELEMENT FAILURE AT 49016 FLIGHT HOURS
SUM OF CRACK LENGTHS AT FAILURE = 31.39 INCHES
RESIDUAL STRENGTH AT FAILURE = .73 ULTIMATE

INSPECTION INTERVAL DECREASE IMPLEMENTED

C-LEVEL INTERVAL NOW 644 HOURS
D-LEVEL INTERVAL NOW 8203 HOURS

FLEET WIDE SPECIAL INSPECTION PERFORMED

INSPECTION INTERVAL INCREASE IMPLEMENTED
C-LEVEL INTERVAL NOW 854 HOURS
D-LEVEL INTERVAL NOW 10254 HOURS

TABLE 9 - Concluded

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                                AIRCRAFT TYPE: HYBRID

NUMBER OF AIRCRAFT IN FLEET:  500                    AIRCRAFT SERVICE LIFE:  60000 HOURS

                        STRUCTURAL ELEMENT: FUS-STR-SID-1940

PREDICTED AVERAGE FATIGUE LIFE: 399600 HOURS          ACTUAL AVERAGE FATIGUE LIFE:  377569 HOURS

                              INITIAL INSPECTION INTERVALS

                                    A-LEVEL    25 HOURS
                                    B-LEVEL   200 HOURS
                                    C-LEVEL  1000 HOURS
                                    D-LEVEL 12000 HOURS

INSPECTION INTERVAL INCREASE IMPLEMENTED
    C-LEVEL INTERVAL NOW  1250 HOURS
    D-LEVEL INTERVAL NOW 15000 HOURS

A/C NO. 323 ENTERS SERVICE  27350 HOURS FROM START OF SIMULATION

    1ST CRACK INITIATION PROJECTED AT   29298 FLIGHT HOURS
    2ND CRACK INITIATION PROJECTED AT  327287 FLIGHT HOURS
    3RD CRACK INITIATION PROJECTED AT  616556 FLIGHT HOURS
    SLOW CRACK GROWTH RATE = .000112 INCHES/HOUR
    FAST CRACK GROWTH RATE = .006797 INCHES/HOUR

INSPECTION INTERVAL INCREASE IMPLEMENTED
    C-LEVEL INTERVAL NOW  1563 HOURS
    D-LEVEL INTERVAL NOW 18750 HOURS

D-LEVEL INSPECTION PERFORMED ON A/C NO. 323 AT  12000 HOURS

INSPECTION INTERVAL INCREASE IMPLEMENTED
    C-LEVEL INTERVAL NOW  1953 HOURS
    D-LEVEL INTERVAL NOW 23438 HOURS

A/C NO. 323 EXPERIENCES 1ST CRACK INITIATION AT  29298 HOURS
    CRACK INITIATES INTERNALLY
    ELEMENT FAILURE PROJECTED AT  56028 FLIGHT HOURS

D-LEVEL INSPECTION PERFORMED ON A/C NO. 323 AT  30750 HOURS

A/C NO. 323 HAS INTERNAL FIRST CRACK BECOME EXTERNAL AT  2.74 INCHES AND  51025 FLIGHT HOURS

D-LEVEL INSPECTION PERFORMED ON A/C NO. 323 AT  54188 HOURS

A/C NO. 323 REACHES FAIL-SAFE STRENGTH AT  55284 FLIGHT HOURS

A/C NO. 323 EXPERIENCES ELEMENT FAILURE AT  56028 FLIGHT HOURS
    SUM OF CRACK LENGTHS AT FAILURE = 17.05 INCHES
    RESIDUAL STRENGTH AT FAILURE = .36 ULTIMATE

INSPECTION INTERVAL DECREASE IMPLEMENTED

    C-LEVEL INTERVAL NOW   684 HOURS
    D-LEVEL INTERVAL NOW  8203 HOURS

FLEET WIDE SPECIAL INSPECTION PERFORMED
```

TABLE 10. DEMONSTRATION RESULTS FOR FUSELAGE - STRINGER, TOP

	Defects Per Million Flight Hours	
	SAIFE	MRR/SDR
Cracks Detected		
Preflight	0.00	0.00
Service	0.00	0.20
Phase	7.30	0.33
Overhaul	3.03	2.78
Special	2.53	3.38
Total	12.86	6.69
Corrosion Detected		
Preflight	0.00	0.00
Service	0.00	0.00
Phase	1.67	0.00
Overhaul	0.17	0.00
Special	0.17	0.00
Total	2.01	0.00
Fail-Safe Damage	0.67	0.00
Failures	0.00	----
Service Damage	0.63	0.06
Production Defects	0.33	0.33

TABLE 10 - Continued

AIRCRAFT TYPE: HYBRID

NUMBER OF AIRCRAFT IN FLEET: 500 AIRCRAFT SERVICE LIFE: 60000 HOURS

SUMMARY OF STRUCTURAL ELEMENT: FUS-STR-TOP

NUMBER AND TIME TO INITIATION OF AIRCRAFT DEFECTS

	FIRST CRACK	CORROSION	SERVICE DAMAGE	PRODUCTION DEFECTS
OCCURRENCES	499	69	19	10
MIN(HRS)	1942	5058	1922	-----
MAX(HRS)	59995	57925	57792	-----
AVG(HRS)	43856	48882	48896	-----

NUMBER AND LENGTH OF CRACKS DETECTED AT EACH LEVEL OF INSPECTION

	A-LEVEL	B-LEVEL	C-LEVEL	D-LEVEL	SPECIAL
OCCURRENCES	0	0	219	91	26
MIN(IN)	0.	0.	.50	.19	.21
MAX(IN)	0.	0.	12.83	14.83	4.28
AVG(IN)	0.	0.	3.20	1.38	1.83

NUMBER AND AREA OF CORROSION DEFECTS DETECTED AT EACH LEVEL OF INSPECTION

	A-LEVEL	B-LEVEL	C-LEVEL	D-LEVEL	SPECIAL
OCCURRENCES	0	0	50	5	5
MIN(SQ.IN)	0.	0.	.80	1.16	0.83
MAX(SQ.IN)	0.	0.	55.05	73.83	16.04
AVG(SQ.IN)	0.	0.	5.09	31.67	10.80

INSPECTION INTERVALS(HRS)

INITIAL	25	200	1000	12000
SHORTEST	25	200	200	1256
LONGEST	25	200	4082	23038

NUMBER OF SPECIAL INSPECTIONS CONDUCTED: 93
NUMBER OF STRUCTURAL MODIFICATIONS: 2
NUMBER OF AIRCRAFT MODIFIED IN SERVICE: 0

STRUCTURAL FAILURES

AIRCRAFT NO.	FLT. HOURS	STA. NO.
28	51581	1080
486	50897	1300

RESIDUAL STRENGTH EQUALS FAIL-SAFE STRENGTH

AIRCRAFT NO.	FLT. HOURS	STA. NO.
490	42917	0200
196	51619	0460
416	46459	0840
2	58805	0920
109	55251	1000
28	43305	1080
186	58552	1160
439	55754	1160
22	48857	1180
40	56439	1220
81	46529	1280
486	52560	1300
429	48806	1320
129	53719	1360
25	55495	1380
4	43511	1520
51	43866	1860
323	55280	1900
458	35241	2120
464	48243	2360

TABLE 10 - Continued

AIRCRAFT TYPE: HYBRID

NUMBER OF AIRCRAFT IN FLEET: 500 AIRCRAFT SERVICE LIFE: 60000 HOURS

STRUCTURAL ELEMENT: FUS-STR-TOP-1080

PREDICTED AVERAGE FATIGUE LIFE: 203130 HOURS ACTUAL AVERAGE FATIGUE LIFE: 104201 HOURS

NUMBER AND TIME TO INITIATION OF AIRCRAFT DEFECTS

	FIRST CRACK	CORROSION	SERVICE DAMAGE	PRODUCTION DEFECTS
OCCURRENCES	6	0	0	0
MIN(HRS)	15809	0	0	-----
MAX(HRS)	59049	0	0	-----
AVG(HRS)	40898	0	0	-----

NUMBER AND LENGTH OF CRACKS DETECTED AT EACH LEVEL OF INSPECTION

	A-LEVEL	B-LEVEL	C-LEVEL	D-LEVEL	SPECIAL
OCCURRENCES	0	0	2	0	0
MIN(IN)	0.	0.	.77	0.	0.
MAX(IN)	0.	0.	1.48	0.	0.
AVG(IN)	0.	0.	1.12	0.	0.

NUMBER AND AREA OF CORROSION DEFECTS DETECTED AT EACH LEVEL OF INSPECTION

	A-LEVEL	B-LEVEL	C-LEVEL	D-LEVEL	SPECIAL
OCCURRENCES	0	0	0	0	0
MIN(SQ.IN)	0.	0.	0.	0.	0.
MAX(SQ.IN)	0.	0.	0.	0.	0.
AVG(SQ.IN)	0.	0.	0.	0.	0.

TABLE 10 - Continued

AIRCRAFT TYPE: HYBRID

NUMBER OF AIRCRAFT IN FLEET: 500 AIRCRAFT SERVICE LIFE: 60000 HOURS

STRUCTURAL ELEMENT: FUS-STR-TOP-1080

PREDICTED AVERAGE FATIGUE LIFE: 203130 HOURS ACTUAL AVERAGE FATIGUE LIFE: 104201 HOURS

INSPECTION INTERVALS(HRS)

INITIAL	25	200	1000	12000
2	25	200	1250	15000
3	25	200	1563	18750
4	25	200	1953	23438
5	25	200	684	8203
6	25	200	854	10254
7	25	200	1068	12817
8	25	200	1335	16022
9	25	200	1669	20027

NUMBER OF SPECIAL INSPECTIONS CONDUCTED: 1
NUMBER OF STRUCTURAL MODIFICATIONS: 1
FINAL ACTUAL AVERAGE MODIFIED FATIGUE LIFE: 402532 HOURS
NUMBER OF AIRCRAFT MODIFIED IN SERVICE: 0

STRUCTURAL FAILURES

AIRCRAFT NO.	FLT. HOURS
28	51581

RESIDUAL STRENGTH EQUALS FAIL-SAFE STRENGTH

AIRCRAFT NO.	FLT. HOURS
28	43395

TABLE 10 - Continued

AIRCRAFT TYPE: HYBRID

NUMBER OF AIRCRAFT IN FLEET: 500 AIRCRAFT SERVICE LIFE: 60000 HOURS

STRUCTURAL ELEMENT: FUS-STR-TOP-1160

PREDICTED AVERAGE FATIGUE LIFE: 206860 HOURS ACTUAL AVERAGE FATIGUE LIFE: 136582 HOURS

NUMBER AND TIME TO INITIATION OF AIRCRAFT DEFECTS

	FIRST CRACK	CORROSION	SERVICE DAMAGE	PRODUCTION DEFECTS
OCCURRENCES	41	0	1	0
MIN(HRS)	8611	0	16838	-----
MAX(HRS)	59709	0	16838	-----
AVG(HRS)	40063	0	16838	-----

NUMBER AND LENGTH OF CRACKS DETECTED AT EACH LEVEL OF INSPECTION

	A-LEVEL	B-LEVEL	C-LEVEL	D-LEVEL	SPECIAL
OCCURRENCES	0	0	15	6	5
MIN(IN)	0.	0.	.37	.25	1.61
MAX(IN)	0.	0.	15.63	1.60	2.12
AVG(IN)	0.	0.	3.03	.70	1.66

NUMBER AND AREA OF CORROSION DEFECTS DETECTED AT EACH LEVEL OF INSPECTION

	A-LEVEL	B-LEVEL	C-LEVEL	D-LEVEL	SPECIAL
OCCURRENCES	0	0	0	0	0
MIN(SQ.IN)	0.	0.	0.	0.	0.
MAX(SQ.IN)	0.	0.	0.	0.	0.
AVG(SQ.IN)	0.	0.	0.	0.	0.

TABLE 10 - Continued

AIRCRAFT TYPE: HYBRID

NUMBER OF AIRCRAFT IN FLEET: 500 AIRCRAFT SERVICE LIFE: 60000 HOURS

STRUCTURAL ELEMENT: FUS-STR-TOP-1160

PREDICTED AVERAGE FATIGUE LIFE: 206860 HOURS ACTUAL AVERAGE FATIGUE LIFE: 136582 HOURS

INSPECTION INTERVALS(HRS)

INITIAL	25	200	1000	12000
2	25	200	1250	15000
3	25	200	1563	18750
4	25	200	547	6563
5	25	200	684	8203
6	25	200	854	10254
7	25	200	299	3589
8	25	200	374	4486
9	25	200	467	5608
10	25	200	584	7010
11	25	200	730	8762
12	25	200	256	3067
13	25	200	319	3833
14	25	200	399	4792
15	25	200	499	5990
16	25	200	624	7487
17	25	200	780	9359
18	25	200	273	3276
19	25	200	341	4094
20	25	200	427	5118

NUMBER OF SPECIAL INSPECTIONS CONDUCTED: 8
NUMBER OF STRUCTURAL MODIFICATIONS: 0
FINAL ACTUAL AVERAGE MODIFIED FATIGUE LIFE: 136582 HOURS
NUMBER OF AIRCRAFT MODIFIED IN SERVICE: 0

STRUCTURAL FAILURES

AIRCRAFT NO.	FLT. HOURS

RESIDUAL STRENGTH EQUALS FAIL-SAFE STRENGTH

AIRCRAFT NO.	FLT. HOURS
186	58552
439	55754

TABLE 10 - Continued

AIRCRAFT TYPE: HYBRID

NUMBER OF AIRCRAFT IN FLEET: 500 AIRCRAFT SERVICE LIFE: 60000 HOURS

STRUCTURAL ELEMENT: FUS-STR-TOP-1760

PREDICTED AVERAGE FATIGUE LIFE: 175380 HOURS ACTUAL AVERAGE FATIGUE LIFE: 104352 HOURS

NUMBER AND TIME TO INITIATION OF AIRCRAFT DEFECTS

	FIRST CRACK	CORROSION	SERVICE DAMAGE	PRODUCTION DEFECTS
OCCURRENCES	52	0	1	0
MIN(HRS)	16166	0	28314	-----
MAX(HRS)	59995	0	28314	-----
AVG(HRS)	42213	0	28314	-----

NUMBER AND LENGTH OF CRACKS DETECTED AT EACH LEVEL OF INSPECTION

	A-LEVEL	B-LEVEL	C-LEVEL	D-LEVEL	SPECIAL
OCCURRENCES	0	0	13	6	10
MIN(IN)	0.	0.	.32	.89	.80
MAX(IN)	0.	0.	5.35	2.18	2.59
AVG(IN)	0.	0.	1.24	1.32	1.39

NUMBER AND AREA OF CORROSION DEFECTS DETECTED AT EACH LEVEL OF INSPECTION

	A-LEVEL	B-LEVEL	C-LEVEL	D-LEVEL	SPECIAL
OCCURRENCES	0	0	0	0	0
MIN(SQ.IN)	0.	0.	0.	0.	0.
MAX(SQ.IN)	0.	0.	0.	0.	0.
AVG(SQ.IN)	0.	0.	0.	0.	0.

TABLE 10 - Continued

AIRCRAFT TYPE: HYBRID

NUMBER OF AIRCRAFT IN FLEET: 500 AIRCRAFT SERVICE LIFE: 60000 HOURS

STRUCTURAL ELEMENT: FUS-STR-TOP-1760

PREDICTED AVERAGE FATIGUE LIFE: 175380 HOURS ACTUAL AVERAGE FATIGUE LIFE: 104352 HOURS

INSPECTION INTERVALS(HRS)

INITIAL	25	200	1000	12000
2	25	200	1250	15000
3	25	200	1563	18750
4	25	200	1953	23438
5	25	200	684	8203
6	25	200	239	2871
7	25	200	299	3589
8	25	200	374	4486
9	25	200	467	5608
10	25	200	584	7010
11	25	200	204	2453
12	25	200	256	3067
13	25	200	319	3833
14	25	200	399	4792
15	25	200	499	5990
16	25	200	624	7487
17	25	200	780	9359

NUMBER OF SPECIAL INSPECTIONS CONDUCTED: 2
NUMBER OF STRUCTURAL MODIFICATIONS: 1
FINAL ACTUAL AVERAGE MODIFIED FATIGUE LIFE: 129189 HOURS
NUMBER OF AIRCRAFT MODIFIED IN SERVICE: 0

STRUCTURAL FAILURES

AIRCRAFT NO.	FLT. HOURS

RESIDUAL STRENGTH EQUALS FAIL-SAFE STRENGTH

AIRCRAFT NO.	FLT. HOURS

TABLE 10 - Continued

AIRCRAFT TYPE: HYBRID

NUMBER OF AIRCRAFT IN FLEET: 300 AIRCRAFT SERVICE LIFE: 60000 HOURS

STRUCTURAL ELEMENT: FUS-STR-TOP-1080

PREDICTED AVERAGE FATIGUE LIFE: 203130 HOURS ACTUAL AVERAGE FATIGUE LIFE: 104201 HOURS

INITIAL INSPECTION INTERVALS

A-LEVEL 25 HOURS
B-LEVEL 200 HOURS
C-LEVEL 1000 HOURS
D-LEVEL 12000 HOURS

A/C NO. 28 ENTERS SERVICE 1500 HOURS FROM START OF SIMULATION

1ST CRACK INITIATION PROJECTED AT 19869 FLIGHT HOURS
2ND CRACK INITIATION PROJECTED AT 121414 FLIGHT HOURS
3RD CRACK INITIATION PROJECTED AT 202950 FLIGHT HOURS
SLOW CRACK GROWTH RATE = .000188 INCHES/HOUR
FAST CRACK GROWTH RATE = .006405 INCHES/HOUR

INSPECTION INTERVAL INCREASE IMPLEMENTED
C-LEVEL INTERVAL NOW 1250 HOURS
D-LEVEL INTERVAL NOW 15000 HOURS

D-LEVEL INSPECTION PERFORMED ON A/C NO. 28 AT 12000 HOURS

A/C NO. 24 EXPERIENCED 1ST CRACK INITIATION AT 19869 HOURS
CRACK INITATES INTERNALLY
ELEMENT FAILURE PROJECTED AT 51581 FLIGHT HOURS

INSPECTION INTERVAL INCREASE IMPLEMENTED
C-LEVEL INTERVAL NOW 1563 HOURS
D-LEVEL INTERVAL NOW 18750 HOURS

D-LEVEL INSPECTION PERFORMED ON A/C NO. 24 AT 27000 HOURS

A/C NO. 28 HAS INTERNAL FIRST CRACK RECOME EXTERNAL AT 2.76 INCHES AND 41952 FLIGHT HOURS

A/C NO. 28 REACHES FAIL-SAFE STRENGTH AT 43595 FLIGHT HOURS

INSPECTION INTERVAL INCREASE IMPLEMENTED
C-LEVEL INTERVAL NOW 1953 HOURS
D-LEVEL INTERVAL NOW 23438 HOURS

D-LEVEL INSPECTION PERFORMED ON A/C NO. 28 AT 45750 HOURS

A/C NO. 28 EXPERINCES ELEMENT FAILURE AT 51581 FLIGHT HOURS
SUM OF CRACK LENGTHS AT FAILURE = 64.42 INCHES
RESIDUAL STRENGTH AT FAILURE = .28 ULTIMATE

INSPECTION INTERVAL DECREASE IMPLEMENTED

C-LEVEL INTERVAL NOW 684 HOURS
D-LEVEL INTERVAL NOW 8205 HOURS

FLEET WIDE SPECIAL INSPECTION PERFORMED

INSPECTION INTERVAL INCREASE IMPLEMENTED
C-LEVEL INTERVAL NOW 854 HOURS
D-LEVEL INTERVAL NOW 10254 HOURS

INSPECTION INTERVAL INCREASE IMPLEMENTED
C-LEVEL INTERVAL NOW 1068 HOURS
D-LEVEL INTERVAL NOW 12817 HOURS

INSPECTION INTERVAL INCREASE IMPLEMENTED
C-LEVEL INTERVAL NOW 1335 HOURS
D-LEVEL INTERVAL NOW 16022 HOURS

INSPECTION INTERVAL INCREASE IMPLEMENTED
C-LEVEL INTERVAL NOW 1669 HOURS
D-LEVEL INTERVAL NOW 20027 HOURS

TABLE 10 - Concluded

AIRCRAFT TYPE: HYBRID

NUMBER OF AIRCRAFT IN FLEET: 500 AIRCRAFT SERVICE LIFE: 40000 HOURS

STRUCTURAL ELEMENT: FUS-STR-TOP-1400

PREDICTED AVERAGE FATIGUE LIFE: 202020 HOURS ACTUAL AVERAGE FATIGUE LIFE: 247193 HOURS

INITIAL INSPECTION INTERVALS

A-LEVEL 25 HOURS
B-LEVEL 200 HOURS
C-LEVEL 1000 HOURS
D-LEVEL 12000 HOURS

INSPECTION INTERVAL INCREASE IMPLEMENTED
C-LEVEL INTERVAL NOW 1250 HOURS
D-LEVEL INTERVAL NOW 15000 HOURS

INSPECTION INTERVAL INCREASE IMPLEMENTED
C-LEVEL INTERVAL NOW 1563 HOURS
D-LEVEL INTERVAL NOW 18750 HOURS

A/C NO. 486 ENTERS SERVICE 43650 HOURS FROM START OF SIMULATION

1ST CRACK INITIATION PROJECTED AT 25911 FLIGHT HOURS
2ND CRACK INITIATION PROJECTED AT 109112 FLIGHT HOURS
3RD CRACK INITIATION PROJECTED AT 248100 FLIGHT HOURS
SLOW CRACK GROWTH RATE = .000109 INCHES/HOUR
FAST CRACK GROWTH RATE = .000828 INCHES/HOUR

INSPECTION INTERVAL INCREASE IMPLEMENTED
C-LEVEL INTERVAL NOW 1953 HOURS
D-LEVEL INTERVAL NOW 23438 HOURS

D-LEVEL INSPECTION PERFORMED ON A/C NO. 486 AT 12000 HOURS

A/C NO. 486 EXPERIENCES 1ST CRACK INITIATION AT 25911 HOURS
CRACK INITIATES INTERNALLY
ELEMENT FAILURE PROJECTED AT 54897 FLIGHT HOURS

D-LEVEL INSPECTION PERFORMED ON A/C NO. 486 AT 35438 HOURS

A/C NO. 486 HAS INTERNAL FIRST CRACK BECOME EXTERNAL AT 2.76 INCHES AND 51144 FLIGHT HOURS

A/C NO. 486 REACHES FAIL-SAFE STRENGTH AT 52560 FLIGHT HOURS

A/C NO. 486 EXPERIENCES ELEMENT FAILURE AT 54897 FLIGHT HOURS
SUM OF CRACK LENGTHS AT FAILURE = 27.09 INCHES
RESIDUAL STRENGTH AT FAILURE = .58 ULTIMATE

INSPECTION INTERVAL DECREASE IMPLEMENTED
C-LEVEL INTERVAL NOW 488 HOURS
D-LEVEL INTERVAL NOW 6201 HOURS

FLEET WIDE SPECIAL INSPECTION PERFORMED

TABLE 11. DEMONSTRATION RESULTS FOR WING - ACCESS FRAME

	Defects Per Million Flight Hours	
	SAIFE	MRR/SDR
Cracks Detected		
Preflight	3.03	0.04
Service	2.47	0.49
Phase	4.83	0.40
Overhaul	0.16	0.81
Special	0.30	0.77
Total	10.79	2.51
Corrosion Detected		
Preflight	2.63	0.00
Service	2.00	0.00
Phase	2.73	0.00
Overhaul	0.03	0.00
Special	0.03	0.00
Total	7.42	0.00
Fail-Safe Damage	0.00	0.18
Failures	0.00	----
Service Damage	0.00	0.00
Production Defects	0.00	0.00

TABLE 11 - Concluded

AIRCRAFT TYPE: HYBRID

NUMBER OF AIRCRAFT IN FLEET: 500 AIRCRAFT SERVICE LIFE: 60000 HOURS

SUMMARY OF STRUCTURAL ELEMENT: WNG-ACC-FRM

NUMBER AND TIME TO INITIATION OF AIRCRAFT DEFECTS

	FIRST CRACK	CORROSION	SERVICE DAMAGE	PRODUCTION DEFECTS
OCCURRENCES	473	236	0	0
MIN(HRS)	2362	869	0	-----
MAX(HRS)	59972	59937	0	-----
AVG(HRS)	43548	30172	0	-----

NUMBER AND LENGTH OF CRACKS DETECTED AT EACH LEVEL OF INSPECTION

	A-LEVEL	B-LEVEL	C-LEVEL	D-LEVEL	SPECIAL
OCCURRENCES	91	78	145	5	9
MIN(IN)	.57	.48	.30	.29	.18
MAX(IN)	2.09	2.11	1.97	.62	1.53
AVG(IN)	.78	.68	.78	.48	.70

NUMBER AND AREA OF CORROSION DEFECTS DETECTED AT EACH LEVEL OF INSPECTION

	A-LEVEL	B-LEVEL	C-LEVEL	D-LEVEL	SPECIAL
OCCURRENCES	79	60	82	1	1
MIN(SQ.IN)	1.11	.86	.68	5.66	11.76
MAX(SQ.IN)	2.68	2.58	17.33	5.66	11.76
AVG(SQ.IN)	1.79	1.55	4.35	5.66	11.76
INSPECTION INTERVALS(HRS)					
INITIAL	25	200	1000	12000	
SHORTEST	25	200	684	12000	
LONGEST	25	200	2401	29297	

NUMBER OF SPECIAL INSPECTIONS CONDUCTED: 7
NUMBER OF STRUCTURAL MODIFICATIONS: 5
NUMBER OF AIRCRAFT MODIFIED IN SERVICE: 0

STRUCTURAL FAILURES

AIRCRAFT NO.	FLT. HOURS	STA. NO.

RESIDUAL STRENGTH EQUALS FAIL-SAFE STRENGTH

AIRCRAFT NO.	FLT. HOURS	STA. NO.

TABLE 12. DEMONSTRATION RESULTS FOR WING - SPAR, AFT

	Defects Per Million Flight Hours	
	SAIFE	MRR/SDR
Cracks Detected		
Preflight	0.83	0.11
Service	2.30	1.62
Phase	0.83	0.72
Overhaul	0.03	1.89
Special	0.00	4.42
Total	3.99	8.76
Corrosion Detected		
Preflight	0.23	0.35
Service	0.90	0.00
Phase	0.17	0.00
Overhaul	0.00	0.00
Special	0.00	0.00
Total	1.30	0.35
Fail-Safe Damage	0.00	0.04
Failures	0.00	----
Service Damage	0.10	0.00
Production Defects	0.10	0.04

TABLE 12 - Concluded

AIRCRAFT TYPE: HYBRID

NUMBER OF AIRCRAFT IN FLEET: 500 AIRCRAFT SERVICE LIFE: 60000 HOURS

SUMMARY OF STRUCTURAL ELEMENT: WNG-SPR-AFT

NUMBER AND TIME TO INITIATION OF AIRCRAFT DEFECTS

	FIRST CRACK	CORROSION	SERVICE DAMAGE	PRODUCTION DEFECTS
OCCURRENCES	165	39	3	3
MIN(HRS)	1526	3879	30568	-----
MAX(HRS)	59864	54888	50325	-----
AVG(HRS)	43851	33891	42219	-----

NUMBER AND LENGTH OF CRACKS DETECTED AT EACH LEVEL OF INSPECTION

	A-LEVEL	B-LEVEL	C-LEVEL	D-LEVEL	SPECIAL
OCCURRENCES	25	69	25	1	0
MIN(IN)	.57	.45	.33	.56	0.
MAX(IN)	1.05	1.24	1.14	.56	0.
AVG(IN)	.73	.74	.59	.56	0.

NUMBER AND AREA OF CORROSION DEFECTS DETECTED AT EACH LEVEL OF INSPECTION

	A-LEVEL	B-LEVEL	C-LEVEL	D-LEVEL	SPECIAL
OCCURRENCES	7	27	5	0	0
MIN(SQ.IN)	1.14	.96	1.00	0.	0.
MAX(SQ.IN)	2.20	4.03	5.03	0.	0.
AVG(SQ.IN)	1.76	2.43	2.15	0.	0.

INSPECTION INTERVALS(HRS)				
INITIAL	25	200	1000	12000
SHORTEST	25	200	1000	12000
LONGEST	25	200	1953	23438

NUMBER OF SPECIAL INSPECTIONS CONDUCTED: 0
NUMBER OF STRUCTURAL MODIFICATIONS: 0
NUMBER OF AIRCRAFT MODIFIED IN SERVICE: 0

STRUCTURAL FAILURES

AIRCRAFT NO.	FLT. HOURS	STA. NO.

RESIDUAL STRENGTH EQUALS FAIL-SAFE STRENGTH

AIRCRAFT NO.	FLT. HOURS	STA. NO.

TABLE 13. DEMONSTRATION RESULTS FOR WING - SPAR, CENTER

	Defects Per Million Flight Hours	
	SAIFE	MRR/SDR
Cracks Detected		
Preflight	0.67	0.00
Service	0.90	0.00
Phase	1.20	0.00
Overhaul	0.00	0.20
Special	0.00	0.00
Total	2.77	0.20
Corrosion Detected		
Preflight	0.20	0.00
Service	0.10	0.00
Phase	0.93	0.00
Overhaul	0.06	0.00
Special	0.00	0.00
Total	1.29	0.00
Fail-Safe Damage	0.00	0.02
Failures	0.00	----
Service Damage	0.00	0.00
Production Defects	0.03	0.00

TABLE 13 - Concluded

AIRCRAFT TYPE: HYBRID

NUMBER OF AIRCRAFT IN FLEET: 500 AIRCRAFT SERVICE LIFE: 60000 HOURS

SUMMARY OF STRUCTURAL ELEMENT: WNG-SPR-CEN

NUMBER AND TIME TO INITIATION OF AIRCRAFT DEFECTS

	FIRST CRACK	CORROSION	SERVICE DAMAGE	PRODUCTION DEFECTS
OCCURRENCES	116	40	0	1
MIN(HRS)	1236	5782	0	-----
MAX(HRS)	59733	59986	0	-----
AVG(HRS)	22351	28464	0	-----

NUMBER AND LENGTH OF CRACKS DETECTED AT EACH LEVEL OF INSPECTION

	A-LEVEL	B-LEVEL	C-LEVEL	D-LEVEL	SPECIAL
OCCURRENCES	20	27	36	0	0
MIN(IN)	.59	.51	.30	0.	0.
MAX(IN)	1.95	2.61	1.65	0.	0.
AVG(IN)	1.02	.93	.83	0.	0.

NUMBER AND AREA OF CORROSION DEFECTS DETECTED AT EACH LEVEL OF INSPECTION

	A-LEVEL	B-LEVEL	C-LEVEL	D-LEVEL	SPECIAL
OCCURRENCES	6	3	28	2	0
MIN(SQ.IN)	1.08	.91	.93	4.56	0.
MAX(SQ.IN)	2.58	2.67	13.52	8.15	0.
AVG(SQ.IN)	2.22	1.62	4.79	6.35	0.
INSPECTION INTERVALS(HRS)					
INITIAL	25	200	1000	12000	
SHORTEST	25	200	684	12000	
LONGEST	25	200	1953	23438	

NUMBER OF SPECIAL INSPECTIONS CONDUCTED: 1
NUMBER OF STRUCTURAL MODIFICATIONS: 0
NUMBER OF AIRCRAFT MODIFIED IN SERVICE: 0

STRUCTURAL FAILURES

AIRCRAFT NO.	FLT. HOURS	STA. NO.
-----	-----	-----

RESIDUAL STRENGTH EQUALS FAIL-SAFE STRENGTH

AIRCRAFT NO.	FLT. HOURS	STA. NO.
-----	-----	-----

TABLE 14. DEMONSTRATION RESULTS FOR WING - SPAR, FORWARD

	Defects Per Million Flight Hours	
	SAIFE	MRR/SDR
Cracks Detected		
Preflight	0.73	0.04
Service	1.67	0.49
Phase	0.90	0.40
Overhaul	0.00	0.81
Special	0.00	0.77
Total	3.30	2.51
Corrosion Detected		
Preflight	0.10	0.00
Service	0.90	0.00
Phase	0.10	0.00
Overhaul	0.00	0.00
Special	0.00	0.00
Total	1.10	0.00
Fail-Safe Damage	0.00	0.18
Failures	0.00	----
Service Damage	0.03	0.00
Production Defects	0.00	0.00

TABLE 14 - Concluded

AIRCRAFT TYPE: HYBRID

NUMBER OF AIRCRAFT IN FLEET: 500 AIRCRAFT SERVICE LIFE: 60000 HOURS

SUMMARY OF STRUCTURAL ELEMENT: ANG-SPR-FWD

NUMBER AND TIME TO INITIATION OF AIRCRAFT DEFECTS

	FIRST CRACK	CORROSION	SERVICE DAMAGE	PRODUCTION DEFECTS
OCCURRENCES	186	38	1	0
MIN(HRS)	13317	3627	30000	-----
MAX(HRS)	59936	59007	30000	-----
AVG(HRS)	45000	31975	30000	-----

NUMBER AND LENGTH OF CRACKS DETECTED AT EACH LEVEL OF INSPECTION

	A-LEVEL	B-LEVEL	C-LEVEL	D-LEVEL	SPECIAL
OCCURRENCES	22	50	27	0	0
MIN(IN)	.58	.00	.42	0.	0.
MAX(IN)	.97	1.17	.97	0.	0.
AVG(IN)	.88	.78	.68	0.	0.

NUMBER AND AREA OF CORROSION DEFECTS DETECTED AT EACH LEVEL OF INSPECTION

	A-LEVEL	B-LEVEL	C-LEVEL	D-LEVEL	SPECIAL
OCCURRENCES	3	27	3	0	0
MIN(SQ.IN)	1.68	.96	1.85	0.	0.
MAX(SQ.IN)	1.88	8.88	2.28	0.	0.
AVG(SQ.IN)	1.77	2.19	2.00	0.	0.
INSPECTION INTERVALS(HRS)					
INITIAL	25	200	1000	12000	
SHORTEST	25	200	1000	12000	
LONGEST	25	200	1955	23938	

NUMBER OF SPECIAL INSPECTIONS CONDUCTED: 0
NUMBER OF STRUCTURAL MODIFICATIONS: 0
NUMBER OF AIRCRAFT MODIFIED IN SERVICE: 0

AIRCRAFT NO.	STRUCTURAL FAILURES FLT. HOURS	STA. NO.

RESIDUAL STRENGTH EQUALS FAIL-SAFE STRENGTH

AIRCRAFT NO.	FLT. HOURS	STA. NO.

TABLE 15. DEMONSTRATION RESULTS FOR WING - STRINGER, AFT

	Defects Per Million Flight Hours SAIFE	MRR/SDR
Cracks Detected		
Preflight	4.30	0.20
Service	7.77	0.77
Phase	7.17	0.20
Overhaul	0.83	0.85
Special	1.50	1.37
Total	21.57	3.39
Corrosion Detected		
Preflight	0.43	0.02
Service	0.77	0.02
Phase	0.13	0.02
Overhaul	0.10	0.02
Special	0.53	0.02
Total	1.96	0.10
Fail-Safe Damage	0.00	0.04
Failures	0.00	----
Service Damage	0.23	0.00
Production Defects	0.10	0.04

TABLE 15 - Continued

AIRCRAFT TYPE: HYBRID

NUMBER OF AIRCRAFT IN FLEET: 500 AIRCRAFT SERVICE LIFE: 60000 HOURS

SUMMARY OF STRUCTURAL ELEMENT: WNG-STR-LSA

NUMBER AND TIME TO INITIATION OF AIRCRAFT DEFECTS

	FIRST CRACK	CORROSION	SERVICE DAMAGE	PRODUCTION DEFECTS
OCCURRENCES	911	38	2	0
MIN(HRS)	2594	203	2394	-----
MAX(HRS)	59960	59438	49529	-----
AVG(HRS)	24065	24216	25961	-----

NUMBER AND LENGTH OF CRACKS DETECTED AT EACH LEVEL OF INSPECTION

	A-LEVEL	B-LEVEL	C-LEVEL	D-LEVEL	SPECIAL
OCCURRENCES	129	167	177	21	37
MIN(IN)	.55	.43	.29	.30	.18
MAX(IN)	2.24	1.75	1.89	1.22	1.48
AVG(IN)	.90	.65	.55	.68	.67

NUMBER AND AREA OF CORROSION DEFECTS DETECTED AT EACH LEVEL OF INSPECTION

	A-LEVEL	B-LEVEL	C-LEVEL	D-LEVEL	SPECIAL
OCCURRENCES	13	4	0	0	12
MIN(SQ.IN)	1.45	1.84	0.	0.	.39
MAX(SQ.IN)	2.95	2.52	0.	0.	29.38
AVG(SQ.IN)	1.90	2.11	0.	0.	12.42

INSPECTION INTERVALS(HRS)

INITIAL	25	200	1000	12000
SHORTEST	25	200	204	1963
LONGEST	25	200	2785	23438

NUMBER OF SPECIAL INSPECTIONS CONDUCTED: 94
NUMBER OF STRUCTURAL MODIFICATIONS: 0
NUMBER OF AIRCRAFT MODIFIED IN SERVICE: 0

STRUCTURAL FAILURES

AIRCRAFT NO.	FLT. HOURS	STA. NO.

RESIDUAL STRENGTH EQUALS FAIL-SAFE STRENGTH

AIRCRAFT NO.	FLT. HOURS	STA. NO.

TABLE 15 - Concluded

AIRCRAFT TYPE: HYBRID

NUMBER OF AIRCRAFT IN FLEET: 500 AIRCRAFT SERVICE LIFE: 60000 HOURS

SUMMARY OF STRUCTURAL ELEMENT: WNG-STR-USA

NUMBER AND TIME TO INITIATION OF AIRCRAFT DEFECTS

	FIRST CRACK	CORROSION	SERVICE DAMAGE	PRODUCTION DEFECTS
OCCURRENCES	135	39	5	3
MIN(HRS)	1726	2582	10160	-----
MAX(HRS)	59971	55184	43619	-----
AVG(HRS)	43102	33248	22596	-----

NUMBER AND LENGTH OF CRACKS DETECTED AT EACH LEVEL OF INSPECTION

	A-LEVEL	B-LEVEL	C-LEVEL	D-LEVEL	SPECIAL
OCCURRENCES	0	60	38	4	8
MIN(IN)	0.	.50	.56	.87	.28
MAX(IN)	0.	5.56	5.62	5.55	3.99
AVG(IN)	0.	2.06	1.54	2.92	1.89

NUMBER AND AREA OF CORROSION DEFECTS DETECTED AT EACH LEVEL OF INSPECTION

	A-LEVEL	B-LEVEL	C-LEVEL	D-LEVEL	SPECIAL
OCCURRENCES	0	19	4	3	4
MIN(SQ.IN)	0.	.75	1.00	4.04	1.52
MAX(SQ.IN)	0.	5.28	2.81	20.01	29.77
AVG(SQ.IN)	0.	1.58	1.76	9.65	17.39

INSPECTION INTERVALS(HRS)				
INITIAL	25	200	1000	12000
SHORTEST	25	200	204	1254
LONGEST	25	200	3462	23038

NUMBER OF SPECIAL INSPECTIONS EFFECTED: 78
NUMBER OF STRUCTURAL MODIFICATIONS: 1
NUMBER OF AIRCRAFT MODIFIED IN SERVICE: 0

STRUCTURAL FAILURES

AIRCRAFT NO.	FLT. HOURS	STA. NO.

RESIDUAL STRENGTH EQUALS FAIL-SAFE STRENGTH

AIRCRAFT NO.	FLT. HOURS	STA. NO.

TABLE 16. DEMONSTRATION RESULTS FOR WING - STRINGER, CENTER

	Defects Per Million Flight Hours	
	SAIFE	MRR/SDR
Cracks Detected		
Preflight	5.30	0.15
Service	10.30	0.22
Phase	11.27	0.64
Overhaul	2.53	1.05
Special	2.33	1.49
Total	31.73	3.55
Corrosion Detected		
Preflight	0.40	0.00
Service	0.73	0.15
Phase	0.30	0.00
Overhaul	0.30	0.04
Special	0.50	0.33
Total	2.23	0.53
Fail-Safe Damage	0.00	0.28
Failures	0.00	----
Service Damage	0.17	0.00
Production Defects	0.13	0.00

TABLE 16 - Continued

AIRCRAFT TYPE: HYBRID

NUMBER OF AIRCRAFT IN FLEET: 500 AIRCRAFT SERVICE LIFE: 60000 HOURS

SUMMARY OF STRUCTURAL ELEMENT: WNG-STR-LSC

NUMBER AND TIME TO INITIATION OF AIRCRAFT DEFECTS

	FIRST CRACK	CORROSION	SERVICE DAMAGE	PRODUCTION DEFECTS
OCCURRENCES	1178	39	5	3
MIN(HRS)	95	2542	10160	-----
MAX(HRS)	59981	55144	43619	-----
AVG(HRS)	43751	33248	22396	-----

NUMBER AND LENGTH OF CRACKS DETECTED AT EACH LEVEL OF INSPECTION

	A-LEVEL	B-LEVEL	C-LEVEL	D-LEVEL	SPECIAL
OCCURRENCES	159	186	243	55	52
MIN(IN)	.56	.41	.28	.18	.13
MAX(IN)	2.43	2.33	1.80	1.57	1.65
AVG(IN)	.89	.68	.53	.66	.65

NUMBER AND AREA OF CORROSION DEFECTS DETECTED AT EACH LEVEL OF INSPECTION

	A-LEVEL	B-LEVEL	C-LEVEL	D-LEVEL	SPECIAL
OCCURRENCES	12	6	2	5	10
MIN(SQ.IN)	1.31	1.01	1.00	1.17	1.10
MAX(SQ.IN)	2.58	1.47	1.13	14.93	33.99
AVG(SQ.IN)	1.88	1.26	1.06	7.33	10.20
INSPECTION INTERVALS(HRS)					
INITIAL	25	200	1000	12000	
SHORTEST	25	200	204	1342	
LONGEST	25	200	2785	23458	

NUMBER OF SPECIAL INSPECTIONS CONDUCTED: 167
NUMBER OF STRUCTURAL MODIFICATIONS: 8
NUMBER OF AIRCRAFT MODIFIED IN SERVICE: 473

STRUCTURAL FAILURES

AIRCRAFT NO.	FLT. HOURS	STA. NO.

RESIDUAL STRENGTH EQUALS FAIL-SAFE STRENGTH

AIRCRAFT NO.	FLT. HOURS	STA. NO.

TABLE 16 - Continued

AIRCRAFT TYPE: HYBRID

NUMBER OF AIRCRAFT IN FLEET: 500 AIRCRAFT SERVICE LIFE: 60000 HOURS

SUMMARY OF STRUCTURAL ELEMENT: WNG-STR-USC

NUMBER AND TIME TO INITIATION OF AIRCRAFT DEFECTS

	FIRST CRACK	CORROSION	SERVICE DAMAGE	PRODUCTION DEFECTS
OCCURRENCES	293	39	0	1
MIN(HRS)	204	4223	0	-----
MAX(HRS)	59737	57791	0	-----
AVG(HRS)	43918	26729	0	-----

NUMBER AND LENGTH OF CRACKS DETECTED AT EACH LEVEL OF INSPECTION

	A-LEVEL	B-LEVEL	C-LEVEL	D-LEVEL	SPECIAL
OCCURRENCES	0	123	95	21	18
MIN(IN)	0.	.50	.29	.38	.60
MAX(IN)	0.	7.12	4.58	5.63	3.59
AVG(IN)	0.	1.64	1.25	1.98	1.84

NUMBER AND AREA OF CORROSION DEFECTS DETECTED AT EACH LEVEL OF INSPECTION

	A-LEVEL	B-LEVEL	C-LEVEL	D-LEVEL	SPECIAL
OCCURRENCES	0	16	7	4	5
MIN(SQ.IN)	0.	.87	1.33	2.50	5.25
MAX(SQ.IN)	0.	3.63	3.51	40.07	45.69
AVG(SQ.IN)	0.	2.26	2.04	13.88	21.66

INSPECTION INTERVALS(HRS)				
INITIAL	25	200	1000	12000
SHORTEST	25	200	204	1256
LONGEST	25	200	3482	23438

NUMBER OF SPECIAL INSPECTIONS CONDUCTED: 102
NUMBER OF STRUCTURAL MODIFICATIONS: 0
NUMBER OF AIRCRAFT MODIFIED IN SERVICE: 0

STRUCTURAL FAILURES

AIRCRAFT NO.	FLT. HOURS	STA. NO.

RESIDUAL STRENGTH EQUALS FAIL-SAFE STRENGTH

AIRCRAFT NO.	FLT. HOURS	STA. NO.

TABLE 16 - Continued

AIRCRAFT TYPE: HYBRID

NUMBER OF AIRCRAFT IN FLEET: 500 AIRCRAFT SERVICE LIFE: 60000 HOURS

STRUCTURAL ELEMENT: WNG-STR-LSC-0294

PREDICTED AVERAGE FATIGUE LIFE: 240120 HOURS ACTUAL AVERAGE FATIGUE LIFE: 215924 HOURS

NUMBER AND TIME TO INITIATION OF AIRCRAFT DEFECTS

	FIRST CRACK	CORROSION	SERVICE DAMAGE	PRODUCTION DEFECTS
OCCURRENCES	8	0	0	0
MIN(HRS)	30735	0	0	-----
MAX(HRS)	52699	0	0	-----
AVG(HRS)	35877	0	0	-----

NUMBER AND LENGTH OF CRACKS DETECTED AT EACH LEVEL OF INSPECTION

	A-LEVEL	B-LEVEL	C-LEVEL	D-LEVEL	SPECIAL
OCCURRENCES	0	4	1	0	1
MIN(IN)	0.	.47	.53	0.	.98
MAX(IN)	0.	.55	.53	0.	.98
AVG(IN)	0.	.52	.53	0.	.98

NUMBER AND AREA OF CORROSION DEFECTS DETECTED AT EACH LEVEL OF INSPECTION

	A-LEVEL	B-LEVEL	C-LEVEL	D-LEVEL	SPECIAL
OCCURRENCES	0	0	0	0	0
MIN(SQ.IN)	0.	0.	0.	0.	0.
MAX(SQ.IN)	0.	0.	0.	0.	0.
AVG(SQ.IN)	0.	0.	0.	0.	0.

INSPECTION INTERVALS(HRS)

INITIAL	25	200	1000	12000
2	25	200	1250	15000
3	25	200	1563	18750
4	25	200	1953	23438
5	25	200	684	8203
6	25	200	854	10254
7	25	200	1000	12000
8	25	200	1250	15000
9	25	200	1563	18750

NUMBER OF SPECIAL INSPECTIONS CONDUCTED: 1
NUMBER OF STRUCTURAL MODIFICATIONS: 1
FINAL ACTUAL AVERAGE MODIFIED FATIGUE LIFE: 159442 HOURS
NUMBER OF AIRCRAFT MODIFIED IN SERVICE: 473

STRUCTURAL FAILURES

AIRCRAFT NO.	FLT. HOURS

RESIDUAL STRENGTH EQUALS FAIL-SAFE STRENGTH

AIRCRAFT NO.	FLT. HOURS

TABLE 16 - Concluded

AIRCRAFT TYPE: HYBRID

NUMBER OF AIRCRAFT IN FLEET: 500 AIRCRAFT SERVICE LIFE: 60000 HOURS

STRUCTURAL ELEMENT: ANG-STR-LSC-0669

PREDICTED AVERAGE FATIGUE LIFE: 165600 HOURS ACTUAL AVERAGE FATIGUE LIFE: 110269 HOURS

NUMBER AND TIME TO INITIATION OF AIRCRAFT DEFECTS

	FIRST CRACK	CORROSION	SERVICE DAMAGE	PRODUCTION DEFECTS
OCCURRENCES	84	1	0	0
MIN(HRS)	13319	13451	0	-----
MAX(HRS)	59969	13451	0	-----
AVG(HRS)	44284	13451	0	-----

NUMBER AND LENGTH OF CRACKS DETECTED AT EACH LEVEL OF INSPECTION

	A-LEVEL	B-LEVEL	C-LEVEL	D-LEVEL	SPECIAL
OCCURRENCES	5	7	17	2	7
MIN(IN)	.57	.49	.34	.41	.13
MAX(IN)	.70	.65	.69	.49	1.00
AVG(IN)	.63	.56	.51	.45	.57

NUMBER AND AREA OF CORROSION DEFECTS DETECTED AT EACH LEVEL OF INSPECTION

	A-LEVEL	B-LEVEL	C-LEVEL	D-LEVEL	SPECIAL
OCCURRENCES	0	1	0	0	0
MIN(SQ.IN)	0.	1.12	0.	0.	0.
MAX(SQ.IN)	0.	1.12	0.	0.	0.
AVG(SQ.IN)	0.	1.12	0.	0.	0.

INSPECTION INTERVALS(HRS)

INITIAL	25	200	1000	12000
2	25	200	1250	15000
3	25	200	1563	18750
4	25	200	1953	23438
5	25	200	684	8203
6	25	200	854	10254
7	25	200	1068	12817
8	25	200	374	4486
9	25	200	467	5606
10	25	200	584	7010

NUMBER OF SPECIAL INSPECTIONS CONDUCTED: 2
NUMBER OF STRUCTURAL MODIFICATIONS: 1
FINAL ACTUAL AVERAGE MODIFIED FATIGUE LIFE: 106827 HOURS
NUMBER OF AIRCRAFT MODIFIED IN SERVICE: 0

STRUCTURAL FAILURES

AIRCRAFT NO.	FLT. HOURS

RESIDUAL STRENGTH EQUALS FAIL-SAFE STRENGTH

AIRCRAFT NO.	FLT. HOURS

TABLE 17. DEMONSTRATION RESULTS FOR WING - STRINGER, FORWARD

	Defects Per Million Flight Hours	
	SAIFE	MRR/SDR
Cracks Detected		
Preflight	4.50	0.21
Service	8.37	0.71
Phase	7.40	1.04
Overhaul	0.93	1.69
Special	1.43	1.04
Total	22.63	4.69
Corrosion Detected		
Preflight	0.33	0.00
Service	0.57	0.31
Phase	0.27	0.00
Overhaul	0.23	0.10
Special	0.67	0.00
Total	2.07	0.41
Fail-Safe Damage	0.00	0.07
Failures	0.00	----
Service Damage	0.07	0.00
Production Defects	0.03	0.02

TABLE 17 - Continued

AIRCRAFT TYPE: HYBRID

NUMBER OF AIRCRAFT IN FLEET: 500 AIRCRAFT SERVICE LIFE: 60000 HOURS

SUMMARY OF STRUCTURAL ELEMENT: WNG-STR-LSF

NUMBER AND TIME TO INITIATION OF AIRCRAFT DEFECTS

	FIRST CRACK	CORROSION	SERVICE DAMAGE	PRODUCTION DEFECTS
OCCURRENCES	498	39	0	1
MIN(HRS)	523	4223	0	-----
MAX(HRS)	59981	57791	0	-----
AVG(HRS)	44232	26724	0	-----

NUMBER AND LENGTH OF CRACKS DETECTED AT EACH LEVEL OF INSPECTION

	A-LEVEL	B-LEVEL	C-LEVEL	D-LEVEL	SPECIAL
OCCURRENCES	135	157	173	21	30
MIN(IN)	.57	.42	.30	.20	.18
MAX(IN)	2.52	2.08	1.89	2.51	1.40
AVG(IN)	.94	.62	.55	.68	.61

NUMBER AND AREA OF CORROSION DEFECTS DETECTED AT EACH LEVEL OF INSPECTION

	A-LEVEL	B-LEVEL	C-LEVEL	D-LEVEL	SPECIAL
OCCURRENCES	11	7	1	5	10
MIN(SQ.IN)	1.20	1.03	1.37	3.51	1.50
MAX(SQ.IN)	2.19	2.02	1.37	37.57	34.88
AVG(SQ.IN)	1.67	1.38	1.37	15.69	15.92
INSPECTION INTERVALS(HRS)					
INITIAL	25	200	1000	12000	
SHORTEST	25	200	204	1963	
LONGEST	25	200	2785	23438	

NUMBER OF SPECIAL INSPECTIONS CONDUCTED: 93
NUMBER OF STRUCTURAL MODIFICATIONS: 0
NUMBER OF AIRCRAFT MODIFIED IN SERVICE: 0

STRUCTURAL FAILURES

AIRCRAFT NO.	FLT. HOURS	STA. NO.

RESIDUAL STRENGTH EQUALS FAIL-SAFE STRENGTH

AIRCRAFT NO.	FLT. HOURS	STA. NO.

TABLE 17 - Concluded

AIRCRAFT TYPE: HYBRID

NUMBER OF AIRCRAFT IN FLEET: 500 AIRCRAFT SERVICE LIFE: 60000 HOURS

SUMMARY OF STRUCTURAL ELEMENT: WNG-STR-USF

NUMBER AND TIME TO INITIATION OF AIRCRAFT DEFECTS

	FIRST CRACK	CORROSION	SERVICE DAMAGE	PRODUCTION DEFECTS
OCCURRENCES	192	36	2	0
MIN(HRS)	2394	203	2394	-----
MAX(HRS)	59900	59434	49529	-----
AVG(HRS)	45520	34054	25961	-----

NUMBER AND LENGTH OF CRACKS DETECTED AT EACH LEVEL OF INSPECTION

	A-LEVEL	B-LEVEL	C-LEVEL	D-LEVEL	SPECIAL
OCCURRENCES	0	94	89	7	13
MIN(IN)	0.	.47	.35	.50	.22
MAX(IN)	0.	4.83	6.68	3.87	3.62
AVG(IN)	0.	1.54	1.60	1.90	1.69

NUMBER AND AREA OF CORROSION DEFECTS DETECTED AT EACH LEVEL OF INSPECTION

	A-LEVEL	B-LEVEL	C-LEVEL	D-LEVEL	SPECIAL
OCCURRENCES	0	10	7	2	10
MIN(SQ.IN)	0.	1.10	1.14	13.38	4.37
MAX(SQ.IN)	0.	3.72	4.40	19.88	61.68
AVG(SQ.IN)	0.	2.32	2.24	16.61	29.86

INSPECTION INTERVALS(HRS)				
INITIAL	25	200	1000	12000
SHORTEST	25	200	204	1146
LONGEST	25	200	2228	23438

NUMBER OF SPECIAL INSPECTIONS CONDUCTED: 92
NUMBER OF STRUCTURAL MODIFICATIONS: 0
NUMBER OF AIRCRAFT MODIFIED IN SERVICE: 0

STRUCTURAL FAILURES

AIRCRAFT NO.	FLT. HOURS	STA. NO.

RESIDUAL STRENGTH EQUALS FAIL-SAFE STRENGTH

AIRCRAFT NO.	FLT. HOURS	STA. NO.

TABLE 18. DEMONSTRATION RESULTS FOR WING CENTER SECTION - STRINGER, AFT

	Defects Per Million Flight Hours	
	SAIFE	MRR/SDR
Cracks Detected		
Preflight	0.00	0.00
Service	0.09	0.00
Phase	0.37	0.00
Overhaul	0.07	0.06
Special	0.00	0.06
Total	0.53	0.12
Corrosion Detected		
Preflight	0.00	0.00
Service	0.57	0.03
Phase	2.10	0.03
Overhaul	0.03	0.00
Special	0.00	0.08
Total	2.70	0.14
Fail-Safe Damage	0.00	0.00
Failures	0.00	----
Service Damage	0.00	0.00
Production Defects	0.00	0.00

TABLE 18 - Continued

AIRCRAFT TYPE: HYBRID

NUMBER OF AIRCRAFT IN FLEET: 500 AIRCRAFT SERVICE LIFE: 60000 HOURS

SUMMARY OF STRUCTURAL ELEMENT: WSC-STR-LSA

NUMBER AND TIME TO INITIATION OF AIRCRAFT DEFECTS

	FIRST CRACK	CORROSION	SERVICE DAMAGE	PRODUCTION DEFECTS
OCCURRENCES	23	39	0	0
MIN(HRS)	15364	5562	0	-----
MAX(HRS)	59788	59460	0	-----
AVG(HRS)	42182	30816	0	-----

NUMBER AND LENGTH OF CRACKS DETECTED AT EACH LEVEL OF INSPECTION

	A-LEVEL	B-LEVEL	C-LEVEL	D-LEVEL	SPECIAL
OCCURRENCES	0	5	5	2	0
MIN(IN)	0.	.62	.70	.74	0.
MAX(IN)	0.	.74	1.00	.89	0.
AVG(IN)	0.	.68	.82	.81	0.

NUMBER AND AREA OF CORROSION DEFECTS DETECTED AT EACH LEVEL OF INSPECTION

	A-LEVEL	B-LEVEL	C-LEVEL	D-LEVEL	SPECIAL
OCCURRENCES	0	8	28	1	0
MIN(SQ.IN)	0.	1.34	1.40	5.35	0.
MAX(SQ.IN)	0.	3.68	26.96	5.35	0.
AVG(SQ.IN)	0.	2.32	6.91	5.35	0.

INSPECTION INTERVALS(HRS)				
INITIAL	25	200	1000	12000
SHORTEST	25	200	1000	12000
LONGEST	25	200	2441	29297

NUMBER OF SPECIAL INSPECTIONS CONDUCTED: 0
NUMBER OF STRUCTURAL MODIFICATIONS: 0
NUMBER OF AIRCRAFT MODIFIED IN SERVICE: 0

STRUCTURAL FAILURES

AIRCRAFT NO.	FLT. HOURS	STA. NO.

RESIDUAL STRENGTH EQUALS FAIL-SAFE STRENGTH

AIRCRAFT NO.	FLT. HOURS	STA. NO.

TABLE 18 - Concluded

AIRCRAFT TYPE: HYBRID

NUMBER OF AIRCRAFT IN FLEET: 500 AIRCRAFT SERVICE LIFE: 60000 HOURS

SUMMARY OF STRUCTURAL ELEMENT: MSC-STR-USA

NUMBER AND TIME TO INITIATION OF AIRCRAFT DEFECTS

	FIRST CRACK	CORROSION	SERVICE DAMAGE	PRODUCTION DEFECTS
OCCURRENCES	10	47	0	0
MIN(HRS)	28002	4678	0	-----
MAX(HRS)	53311	58849	0	-----
AVG(HRS)	39958	31993	0	-----

NUMBER AND LENGTH OF CRACKS DETECTED AT EACH LEVEL OF INSPECTION

	A-LEVEL	B-LEVEL	C-LEVEL	D-LEVEL	SPECIAL
OCCURRENCES	0	4	6	0	0
MIN(IN)	0.	.82	1.11	0.	0.
MAX(IN)	0.	2.09	2.68	0.	0.
AVG(IN)	0.	1.40	1.88	0.	0.

NUMBER AND AREA OF CORROSION DEFECTS DETECTED AT EACH LEVEL OF INSPECTION

	A-LEVEL	B-LEVEL	C-LEVEL	D-LEVEL	SPECIAL
OCCURRENCES	0	9	35	0	0
MIN(SQ.IN)	0.	1.92	1.02	0.	0.
MAX(SQ.IN)	0.	5.80	24.74	0.	0.
AVG(SQ.IN)	0.	3.45	5.92	0.	0.

INSPECTION INTERVALS(HRS)				
INITIAL	25	200	1000	12000
SHORTEST	25	200	1000	12000
LONGEST	25	200	1953	23438

NUMBER OF SPECIAL INSPECTIONS CONDUCTED: 0
NUMBER OF STRUCTURAL MODIFICATIONS: 0
NUMBER OF AIRCRAFT MODIFIED IN SERVICE: 0

STRUCTURAL FAILURES

AIRCRAFT NO.	FLT. HOURS	STA. NO.

RESIDUAL STRENGTH EQUALS FAIL-SAFE STRENGTH

AIRCRAFT NO.	FLT. HOURS	STA. NO.

TABLE 19. DEMONSTRATION RESULTS FOR WING CENTER SECTION - STRINGER, CENTER

	Defects Per Million Flight Hours	
	SAIFE	MRR/SDR
Cracks Detected		
Preflight	0.00	0.04
Service	0.43	0.04
Phase	0.83	0.04
Overhaul	0.07	0.40
Special	0.00	0.18
Total	1.33	0.70
Corrosion Detected		
Preflight	0.00	0.08
Service	0.70	0.30
Phase	1.57	0.00
Overhaul	0.07	0.93
Special	0.00	0.46
Total	2.34	1.77
Fail-Safe Damage	0.00	0.17
Failures	0.00	----
Service Damage	0.00	0.00
Production Defects	0.00	0.04

TABLE 10 - Continued

AIRCRAFT TYPE: HYBRID

NUMBER OF AIRCRAFT : FLT : 500 AIRCRAFT SERVICE LIFE: 60000 HOURS

SUMMARY OF STRUCTURAL ELEMENT: WSC-STR-LSC

NUMBER AND TIME TO INITIATION OF AIRCRAFT DEFECTS

	FIRST CRACK	CORROSION	SERVICE DAMAGE	PRODUCTION DEFECTS
OCCURRENCES	66	41	0	0
MIN(HRS)	13338	3762	0	-----
MAX(HRS)	59879	56424	0	-----
AVG(HRS)	45337	30611	0	-----

NUMBER AND LENGTH OF CRACKS DETECTED AT EACH LEVEL OF INSPECTION

	A-LEVEL	B-LEVEL	C-LEVEL	D-LEVEL	SPECIAL
OCCURRENCES	0	11	22	2	0
MIN(IN)	0.	.52	.30	.63	0.
MAX(IN)	0.	.90	1.11	1.34	0.
AVG(IN)	0.	.69	.66	.99	0.

NUMBER AND AREA OF CORROSION DEFECTS DETECTED AT EACH LEVEL OF INSPECTION

	A-LEVEL	B-LEVEL	C-LEVEL	D-LEVEL	SPECIAL
OCCURRENCES	0	14	25	1	0
MIN(SQ.IN)	0.	1.25	1.06	1.04	0.
MAX(SQ.IN)	0.	4.34	19.41	1.04	0.
AVG(SQ.IN)	0.	2.39	8.25	1.04	0.

INSPECTION INTERVALS(HRS)				
INITIAL	25	200	1000	12000
SHORTEST	25	200	1000	12000
LONGEST	25	200	1953	23438

NUMBER OF SPECIAL INSPECTIONS CONDUCTED: 0
NUMBER OF STRUCTURAL MODIFICATIONS: 1
NUMBER OF AIRCRAFT MODIFIED IN SERVICE: 0

STRUCTURAL FAILURES

AIRCRAFT NO.	FLT. HOURS	STA. NO.

RESIDUAL STRENGTH EQUALS FAIL-SAFE STRENGTH

AIRCRAFT NO.	FLT. HOURS	STA. NO.

TABLE 19 - Concluded

AIRCRAFT TYPE: HYBRID

NUMBER OF AIRCRAFT IN FLEET: 500 AIRCRAFT SERVICE LIFE: 60000 HOURS

SUMMARY OF STRUCTURAL ELEMENT: #SC-STR-USC

NUMBER AND TIME TO INITIATION OF AIRCRAFT DEFECTS

	FIRST CRACK	CORROSION	SERVICE DAMAGE	PRODUCTION DEFECTS
OCCURRENCES	5	30	0	0
MIN(HRS)	29826	2343	0	-----
MAX(HRS)	55109	54877	0	-----
AVG(HRS)	45274	28265	0	-----

NUMBER AND LENGTH OF CRACKS DETECTED AT EACH LEVEL OF INSPECTION

	A-LEVEL	B-LEVEL	C-LEVEL	D-LEVEL	SPECIAL
OCCURRENCES	0	2	3	0	0
MIN(IN)	0.	.80	.80	0.	0.
MAX(IN)	0.	.98	1.92	0.	0.
AVG(IN)	0.	.87	1.50	0.	0.

NUMBER AND AREA OF CORROSION DEFECTS DETECTED AT EACH LEVEL OF INSPECTION

	A-LEVEL	B-LEVEL	C-LEVEL	D-LEVEL	SPECIAL
OCCURRENCES	0	7	22	1	0
MIN(SQ.IN)	0.	1.18	1.80	2.97	0.
MAX(SQ.IN)	0.	3.93	11.71	2.97	0.
AVG(SQ.IN)	0.	2.64	6.26	2.97	0.

INSPECTION INTERVALS(HRS)				
INITIAL	25	200	1000	12000
SHORTEST	25	200	1000	12000
LONGEST	25	200	1953	23838

NUMBER OF SPECIAL INSPECTIONS CONDUCTED: 0
NUMBER OF STRUCTURAL MODIFICATIONS: 0
NUMBER OF AIRCRAFT MODIFIED IN SERVICE: 0

STRUCTURAL FAILURES

AIRCRAFT NO.	FLT. HOURS	STA. NO.

RESIDUAL STRENGTH EQUALS FAIL-SAFE STRENGTH

AIRCRAFT NO.	FLT. HOURS	STA. NO.

TABLE 20. DEMONSTRATION RESULTS FOR WING CENTER SECTION - STRINGER, FORWARD

	Defects Per Million Flight Hours	
	SAIFE	MRR/SDR
Cracks Detected		
Preflight	0.00	0.00
Service	0.17	0.25
Phase	0.37	0.45
Overhaul	0.00	0.14
Special	0.00	2.76
Total	0.54	3.60
Corrosion Detected		
Preflight	0.00	0.00
Service	0.50	0.03
Phase	1.53	0.00
Overhaul	0.00	0.05
Special	0.00	0.03
Total	2.03	0.11
Fail-Safe Damage	0.00	0.11
Failures	0.00	----
Service Damage	0.00	0.00
Production Defects	0.00	0.00

TABLE 20 - Continued

AIRCRAFT TYPE: HYBRID

NUMBER OF AIRCRAFT IN FLEET: 500 AIRCRAFT SERVICE LIFE: 60000 HOURS

SUMMARY OF STRUCTURAL ELEMENT: WSC-STR-LSF

NUMBER AND TIME TO INITIATION OF AIRCRAFT DEFECTS

	FIRST CRACK	CORROSION	SERVICE DAMAGE	PRODUCTION DEFECTS
OCCURRENCES	19	36	0	0
MIN(HRS)	6281	3466	0	-----
MAX(HRS)	59091	55140	0	-----
AVG(HRS)	44599	30610	0	-----

NUMBER AND LENGTH OF CRACKS DETECTED AT EACH LEVEL OF INSPECTION

	A-LEVEL	B-LEVEL	C-LEVEL	D-LEVEL	SPECIAL
OCCURRENCES	0	8	6	0	0
MIN(IN)	0.	.55	.33	0.	0.
MAX(IN)	0.	1.24	1.27	0.	0.
AVG(IN)	0.	.83	.74	0.	0.

NUMBER AND AREA OF CORROSION DEFECTS DETECTED AT EACH LEVEL OF INSPECTION

	A-LEVEL	B-LEVEL	C-LEVEL	D-LEVEL	SPECIAL
OCCURRENCES	0	8	28	0	0
MIN(SQ.IN)	0.	.86	1.07	0.	0.
MAX(SQ.IN)	0.	2.52	23.26	0.	0.
AVG(SQ.IN)	0.	1.91	5.93	0.	0.

INSPECTION INTERVALS(HRS)				
INITIAL	25	200	1000	12000
SHORTEST	25	200	1000	12000
LONGEST	25	200	1953	23438

NUMBER OF SPECIAL INSPECTIONS CONDUCTED: 0
NUMBER OF STRUCTURAL MODIFICATIONS: 0
NUMBER OF AIRCRAFT MODIFIED IN SERVICE: 0

STRUCTURAL FAILURES

AIRCRAFT NO.	FLT. HOURS	STA. NO.

RESIDUAL STRENGTH EQUALS FAIL-SAFE STRENGTH

AIRCRAFT NO.	FLT. HOURS	STA. NO.

TABLE 20 - Concluded

AIRCRAFT TYPE: HYBRID

NUMBER OF AIRCRAFT IN FLEET: 500 AIRCRAFT SERVICE LIFE: 60000 HOURS

SUMMARY OF STRUCTURAL ELEMENT: WSC-STR-USF

NUMBER AND TIME TO INITIATION OF AIRCRAFT DEFECTS

	FIRST CRACK	CORROSION	SERVICE DAMAGE	PRODUCTION DEFECTS
OCCURRENCES	6	28	0	0
MIN(HRS)	17854	5641	0	-----
MAX(HRS)	54830	59110	0	-----
AVG(HRS)	42009	33027	0	-----

NUMBER AND LENGTH OF CRACKS DETECTED AT EACH LEVEL OF INSPECTION

	A-LEVEL	B-LEVEL	C-LEVEL	D-LEVEL	SPECIAL
OCCURRENCES	0	1	5	0	0
MIN(IN)	0.	1.72	1.11	0.	0.
MAX(IN)	0.	1.72	2.15	0.	0.
AVG(IN)	0.	1.72	1.67	0.	0.

NUMBER AND AREA OF CORROSION DEFECTS DETECTED AT EACH LEVEL OF INSPECTION

	A-LEVEL	B-LEVEL	C-LEVEL	D-LEVEL	SPECIAL
OCCURRENCES	0	7	18	0	0
MIN(SQ.IN)	0.	1.03	1.03	0.	0.
MAX(SQ.IN)	0.	4.21	16.47	0.	0.
AVG(SQ.IN)	0.	2.18	6.02	0.	0.

INSPECTION INTERVALS(HRS)				
INITIAL	25	200	1000	12000
SHORTEST	25	200	1000	12000
LONGEST	25	200	1953	23438

NUMBER OF SPECIAL INSPECTIONS CONDUCTED: 0
NUMBER OF STRUCTURAL MODIFICATIONS: 0
NUMBER OF AIRCRAFT MODIFIED IN SERVICE: 0

STRUCTURAL FAILURES

AIRCRAFT NO.	FLT. HOURS	STA. NO.

RESIDUAL STRENGTH EQUALS FAIL-SAFE STRENGTH

AIRCRAFT NO.	FLT. HOURS	STA. NO.

TABLE 21. DEMONSTRATION RESULTS FOR WING CENTER SECTION - SPANWISE BEAM, AFT

	Defects Per Million Flight Hours	
	SAIFE	MRR/SDR
Cracks Detected		
Preflight	0.00	0.04
Service	0.20	0.12
Phase	0.10	0.04
Overhaul	0.00	0.28
Special	0.03	0.12
Total	0.33	0.60
Corrosion Detected		
Preflight	0.00	0.00
Service	0.03	0.04
Phase	0.00	0.00
Overhaul	0.13	0.04
Special	0.07	0.09
Total	0.23	0.17
Fail-Safe Damage	0.00	0.00
Failures	0.00	----
Service Damage	0.13	0.00
Production Defects	0.00	0.00

TABLE 21 - Concluded

AIRCRAFT TYPE: HYBRID

NUMBER OF AIRCRAFT IN FLEET: 500 AIRCRAFT SERVICE LIFE: 60000 HOURS

SUMMARY OF STRUCTURAL ELEMENT: WSC-SWR-AFT

NUMBER AND TIME TO INITIATION OF AIRCRAFT DEFECTS

	FIRST CRACK	CORROSION	SERVICE DAMAGE	PRODUCTION DEFECTS
OCCURRENCES	17	9	4	0
MIN(HRS)	12738	8814	22075	-----
MAX(HRS)	59868	51350	38968	-----
AVG(HRS)	44185	35198	29714	-----

NUMBER AND LENGTH OF CRACKS DETECTED AT EACH LEVEL OF INSPECTION

	A-LEVEL	B-LEVEL	C-LEVEL	D-LEVEL	SPECIAL
OCCURRENCES	0	6	3	0	1
MIN(IN)	0.	.55	.30	0.	1.36
MAX(IN)	0.	2.40	2.93	0.	1.36
AVG(IN)	0.	1.30	1.23	0.	1.36

NUMBER AND AREA OF CORROSION DEFECTS DETECTED AT EACH LEVEL OF INSPECTION

	A-LEVEL	B-LEVEL	C-LEVEL	D-LEVEL	SPECIAL
OCCURRENCES	0	1	0	4	2
MIN(SQ.IN)	0.	1.56	0.	1.99	3.40
MAX(SQ.IN)	0.	1.56	0.	17.32	16.68
AVG(SQ.IN)	0.	1.56	0.	9.97	10.04

INSPECTION INTERVALS(HRS)				
INITIAL	25	200	1000	12000
SHORTEST	25	200	299	1570
LONGEST	25	200	2228	23438

NUMBER OF SPECIAL INSPECTIONS CONDUCTED: 8
NUMBER OF STRUCTURAL MODIFICATIONS: 0
NUMBER OF AIRCRAFT MODIFIED IN SERVICE: 0

STRUCTURAL FAILURES

AIRCRAFT NO.	FLT. HOURS	STA. NO.

RESIDUAL STRENGTH EQUALS FAIL-SAFE STRENGTH

AIRCRAFT NO.	FLT. HOURS	STA. NO.

TABLE 22. DEMONSTRATION RESULTS FOR WING CENTER SECTION - SPANWISE BEAM, CENTER

	Defects Per Million Flight Hours	
	SAIFE	MRR/SDR
Cracks Detected		
Preflight	0.00	0.00
Service	0.10	0.02
Phase	0.03	0.02
Overhaul	0.00	0.19
Special	0.00	0.00
Total	0.13	0.23
Corrosion Detected		
Preflight	0.00	0.00
Service	0.00	0.00
Phase	0.03	0.09
Overhaul	0.13	0.00
Special	0.10	0.00
Total	0.26	0.09
Fail-Safe Damage	0.00	0.00
Failures	0.00	----
Service Damage	0.03	0.00
Production Defects	0.00	0.00

TABLE 22 - Concluded

AIRCRAFT TYPE: HYBRID

NUMBER OF AIRCRAFT IN FLEET: 500 AIRCRAFT SERVICE LIFE: 60000 HOURS

SUMMARY OF STRUCTURAL ELEMENT: #SC-SHH-CEN

NUMBER AND TIME TO INITIATION OF AIRCRAFT DEFECTS

	FIRST CRACK	CORROSION	SERVICE DAMAGE	PRODUCTION DEFECTS
OCCURRENCES	6	12	1	0
MIN(HRS)	30430	9077	30430	-----
MAX(HRS)	59536	59462	30430	-----
AVG(HRS)	43255	38369	30430	-----

NUMBER AND LENGTH OF CRACKS DETECTED AT EACH LEVEL OF INSPECTION

	A-LEVEL	B-LEVEL	C-LEVEL	D-LEVEL	SPECIAL
OCCURRENCES	0	3	1	0	0
MIN(IN)	0.	.58	.64	0.	0.
MAX(IN)	0.	4.05	.64	0.	0.
AVG(IN)	0.	1.96	.64	0.	0.

NUMBER AND AREA OF CORROSION DEFECTS DETECTED AT EACH LEVEL OF INSPECTION

	A-LEVEL	B-LEVEL	C-LEVEL	D-LEVEL	SPECIAL
OCCURRENCES	0	0	1	4	3
MIN(SQ.IN)	0.	0.	2.79	4.37	8.07
MAX(SQ.IN)	0.	0.	2.79	43.81	26.63
AVG(SQ.IN)	0.	0.	2.79	16.07	16.64

INSPECTION INTERVALS(HRS)				
INITIAL	25	200	1000	12000
SHORTEST	25	200	374	4486
LONGEST	25	200	1953	23438

NUMBER OF SPECIAL INSPECTIONS CONDUCTED: 4
NUMBER OF STRUCTURAL MODIFICATIONS: 0
NUMBER OF AIRCRAFT MODIFIED IN SERVICE: 0

STRUCTURAL FAILURES

AIRCRAFT NO.	FLT. HOURS	STA. NO.
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RESIDUAL STRENGTH EQUALS FAIL-SAFE STRENGTH

AIRCRAFT NO.	FLT. HOURS	STA. NO.
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TABLE 23. DEMONSTRATION RESULTS FOR WING CENTER SECTION - SPANWISE BEAM, FORWARD

	Defects Per Million Flight Hours	
	SAIFE	MRR/SDR
Crack Detected		
Preflight	0.00	0.00
Service	0.10	0.14
Phase	0.03	0.29
Overhaul	0.03	0.07
Special	0.07	1.24
Total	0.23	1.74
Corrosion Detected		
Preflight	0.00	0.00
Service	0.10	0.13
Phase	0.07	0.00
Overhaul	0.07	0.00
Special	0.03	0.00
Total	0.27	0.13
Fail-Safe Damage	0.00	0.09
Failures	0.00	----
Service Damage	0.03	0.09
Production Defects	0.00	0.00

TABLE 23 - Concluded

AIRCRAFT TYPE: HYBRID

NUMBER OF AIRCRAFT IN FLEET: 500 AIRCRAFT SERVICE LIFE: 60000 HOURS

SUMMARY OF STRUCTURAL ELEMENT: WSC-SWB-FWD

NUMBER AND TIME TO INITIATION OF AIRCRAFT DEFECTS

	FIRST CRACK	CORROSION	SERVICE DAMAGE	PRODUCTION DEFECTS
OCCURRENCES	11	11	1	0
MIN(HRS)	21509	16308	21613	-----
MAX(HRS)	59984	53993	21613	-----
AVG(HRS)	43115	36839	21613	-----

NUMBER AND LENGTH OF CRACKS DETECTED AT EACH LEVEL OF INSPECTION

	A-LEVEL	B-LEVEL	C-LEVEL	D-LEVEL	SPECIAL
OCCURRENCES	0	3	1	1	2
MIN(IN)	0.	1.60	.69	.82	.58
MAX(IN)	0.	2.71	.69	.82	.72
AVG(IN)	0.	2.20	.69	.82	.65

NUMBER AND AREA OF CORROSION DEFECTS DETECTED AT EACH LEVEL OF INSPECTION

	A-LEVEL	B-LEVEL	C-LEVEL	D-LEVEL	SPECIAL
OCCURRENCES	0	3	2	2	1
MIN(SQ.IN)	0.	1.52	3.81	21.88	39.37
MAX(SQ.IN)	0.	2.56	4.85	50.44	39.37
AVG(SQ.IN)	0.	2.08	4.33	36.16	39.37

INSPECTION INTERVALS(HRS)				
INITIAL	25	200	1000	12000
SHORTEST	25	200	239	1256
LONGEST	25	200	2785	23438

NUMBER OF SPECIAL INSPECTIONS CONDUCTED: 5
NUMBER OF STRUCTURAL MODIFICATIONS: 0
NUMBER OF AIRCRAFT MODIFIED IN SERVICE: 0

STRUCTURAL FAILURES

AIRCRAFT NO.	FLT. HOURS	STA. NO.

RESIDUAL STRENGTH EQUALS FAIL-SAFE STRENGTH

AIRCRAFT NO.	FLT. HOURS	STA. NO.

TABLE 24. COMPARISON OF RESULTS IN DEMONSTRATION STAGES FOR DOOR FRAME

	Defects per Million Flight Hours - SAIFE			
	1st	2nd	3rd	Final
Cracks Detected				
Preflight	1.97	0.46	0.40	0.53
Service	2.23	0.53	0.47	0.60
Phase	21.30	3.20	3.40	2.63
Overhaul	2.80	0.17	0.03	0.13
Special	1.80	0.03	0.03	0.00
Total	30.10	4.39	4.33	3.89
Corrosion Detected				
Preflight	0.43	0.57	0.40	0.47
Service	0.03	0.33	0.57	0.30
Phase	1.46	0.70	0.70	1.00
Overhaul	0.90	0.10	0.00	0.00
Special	0.13	0.00	0.00	0.00
Total	2.95	1.70	1.67	1.77
Fail-Safe Damage	0.00	0.00	0.00	0.00
Failures	0.00	0.00	0.00	0.00
Service Damage	0.43	0.27	0.43	0.27
Production Defects	0.00	0.00	0.00	0.00

TABLE 25. COMPARISON OF RESULTS IN DEMONSTRATION STAGES FOR WING CENTER SECTION - SPANWISE BEAM, AFT

	Defects per Million Flight Hours - SAFE			
	1st	2nd	3rd	Final
Cracks Detected				
Preflight	0.00	0.00		0.00
Service	0.73	0.13		0.20
Phase	0.90	0.00		0.10
Overhaul	1.27	0.00		0.00
Special	0.93	0.00		0.03
Total	3.83	0.13	Data Not Available	0.33
Corrosion Detected				
Preflight	0.00	0.00		0.00
Service	0.00	0.13		0.03
Phase	0.03	0.07		0.00
Overhaul	0.27	0.00		0.13
Special	0.13	0.03		0.07
Total	0.43	0.23		0.23
Fail-Safe Damage	0.07	0.00		0.00
Failures	0.00	0.00		0.00
Service Damage	0.20	0.03		0.13
Production Defects	0.03	0.00		0.00

TABLE 26. COMPARISON OF RESULTS IN DEMONSTRATION STAGES FOR WING CENTER SECTION - SPANWISE BEAM, CENTER

	Defects per Million Flight Hours - SAIFE			
	1st	2nd	3rd	Final
Cracks Detected				
Preflight	0.00	0.00		0.00
Service	0.67	0.03		0.10
Phase	1.03	0.03		0.03
Overhaul	1.63	0.07		0.00
Special	1.10	0.00		0.00
Total	4.43	0.13	Data Not Available	0.13
Corrosion Detected				
Preflight	0.00	0.00		0.00
Service	0.03	0.10		0.00
Phase	0.07	0.00		0.03
Overhaul	0.27	0.13		0.13
Special	0.23	0.10		0.10
Total	0.50	0.33		0.26
Fail-Safe Damage	0.03	0.00		0.00
Failures	0.03	0.00		0.00
Service Damage	0.10	0.07		0.03
Production Defects	0.00	0.00		0.00

TABLE 27. COMPARISON OF RESULTS IN DEMONSTRATION STAGES FOR WING CENTER SECTION - SPANWISE BEAM, FORWARD

	Defects per Million Flight Hours - SAIFE			
	1st	2nd	3rd	Final
Cracks Detected				
Preflight	0.00	0.00		0.00
Service	1.00	0.03		0.10
Phase	1.53	0.00		0.03
Overhaul	1.40	0.03		0.03
Special	2.40	0.03		0.07
Total	6.33	0.09	Data Not Available	0.23
Corrosion Detected.				
Preflight	0.00	0.00		0.00
Service	0.03	0.07		0.10
Phase	0.03	0.03		0.07
Overhaul	0.13	0.07		0.07
Special	0.33	0.00		0.03
Total	0.52	0.17		0.27
Fail-Safe Damage	0.23	0.03		0.00
Failures	0.10	0.03		0.00
Service Damage	0.23	0.03		0.03
Production Defects	0.00	0.00		0.00

APPENDIX A

AFS-510 DEMONSTRATION

APPENDIX A

The results of AFS-510 demonstration with the revised model are presented in this Appendix A to Volume V. The tables roughly correspond with the tables of Volume V. A sample of the demonstration case, using approximately 10% of the elements on the complete airplane, was also run using the sampling technique developed, and these results are also presented in Tables 1, 2A and 2B.

The ratio of total number of cracks detected in the simulation to the number of cracks reported in MRR's (Column (a) of table 1) did not change greatly (2.30 and 3.02 for demo and sample vs. 3.17 for original demo) from the original Tech. Inc. demonstration and for the reasons given in Volume V, is considered realistic.

The ratio of the total number of cracks occurring in the simulation, to cracks detected (column (b) table 1) has increased (2.74 and 2.51 for demo and sample vs. 1.88 for original demo) from the original Tech Inc. demonstration. This is attributed to the lower inspection reliability used in the revised demonstration. This lower inspection reliability is considered more realistic as it based on a rational analysis of actual MRR reports. The higher ratio is also some-what supported by an USAF study in which it was determined by a complete structural teardown and NDI inspection on two KC-135 full scale wing fatigue tests, that only one-fifth of the cracks present were found in the normal test inspection program.

Columns (c) and (d) of table 1 list the larger cracks experienced in the full demonstration and the sample. The sample results are based on the extrapolation method of predicting largest cracks in the complete fleet based on the distribution of the frequency and length of cracks in the sample. The agreement between the full demonstration and the sample is good, indicating that 70 to 90% of fail safe crack length would be equaled or exceeded 5 times in the life of the fleet and that cracks as large as 161% (full demo, 31 inches in side stringer) and 135% of fail-safe length (sample, 26 inches also in side stringer) would occur. These large cracks did not cause any failures in these particular simulation runs. The capability to predict the percent of fail-safe length equaled or exceeded by the 5 largest cracks was added to the sample.

Columns (e) and (f) of table 1 give the estimated failure rates based on two different estimation methods for both the full demonstration and sample. The method of column (e) merely divides the failure rates of the sample by the decimal percent of the sample. This method ignores the possibility that the larger exposure in a simulation of the complete airplane would result in longer cracks with a much higher risk of failure. The method of column (f) is based on extrapolation of the sample crack frequency, length and probability of failure to cover the complete airplane. This method is considered more realistic. The sample and full demonstration failure rate estimates are in reasonable agreement although, the sample failure rate estimates are generally lower. Great credence should not be placed on the absolute value of the estimated failure rates because the input and relationships in the simulation are only approximate and because of the statistical nature of the simulation, the results may vary considerably from run to run. However, it is of interest to note that the simulation, which is evaluating a typical wide-body design operating under typical inspection programs and practices, predicts failure rates (5.83×10^{-10} for full demo, 2.84×10^{-10} for sample) which meet the widely accepted criteria of less than one failure in 10^{9} airplane hours. As would be expected

for these failure rates, no failure occurred in a simulation covering 5×10^7 airplane flight hours. "Failure" is defined as the complete structure being no longer capable of supporting the flight or pressure loads, as applicable. Sample estimates of failure rates and the percent of fail-safe crack length equaled or exceeded by the 5 largest cracks will be used in the forthcoming parametric trend studies to gauge the effect on safety by varying design parameters, inspection programs and operating practices. Crack length was added as an indicator because failure rate estimates are quite volatile.

Table 2A simulation results show good agreement with MRR data in the percent of cracks detected at each inspection level. Approximately 67% of the cracks were detected in the simulation in the close or detailed inspection (overhaul and special) compared to 78% reported in the MRR's. Only 20 to 30% of the cracks were detected in area or cursory type inspections. Here again, there is good agreement between the full demonstration and sample, and the revised simulation is much closer to MRR experience than the initial simulation reported in Volume V.

Table 2B shows good correlation between the average length crack detected in the sample (1.718 inches) the full demonstration (1.515 inches) and the MRR's (1.567 inches) and improved correlation over the initial demonstration (.95 inches with unrealistic fuselage side frame results removed). This improved correlation supports the lower inspection reliability curves, based on MRR studies, and used in the revised program demonstration.

The summary of full demonstration results are given in tables 3 through 24 for each element type. Table 8 in Volume V was ommitted because fuselage bottom stringers were not included in the full demonstration as progressive circumferential failures were not considered probable because of the low stress and the primary compressive loading of this structure.

The fuselage side stringers and wing lower surface center stringers dominate the failure rate prediction for flight structure and the fuselage window frames dominate the failure rate for pressure structure in the particular simulation run made for the full demonstration. The complete three page short list computer printout is included in table 9 for the risk dominating fuselage side stringer element (station 1100). The first page lists the random number seeds needed to duplicate the run; aircraft number for aircraft which experience corrosion, production or service damage; the simulation time at which first crack is discovered; inspection, modification and repair costs and simulation time for each modification evaluation; and cracks found in internal inspection. The second page is the standard short list and the third page gives aircraft number of each element which cracks; aircraft flight hours when the crack was terminated by repair, modification, retirement or failure; crack length at termination; and probability of failure associated the crack in each element. From the short list and input for station 1100 it can be deduced that the dominating crack was initiated by service damage at 21447 flight hours on aircraft number 408, was external and grew without detection to 19.44 inches at 58255 flight hours and to 31.19 inches at retirement at 60,000 flight hours without experiencing a load in excess of residual strength. A and B level inspections were not considered effective in this area and non exploratory C and D inspections were being made at 3520 to 4399 and 23,730 to 29663 hour intervals during this period with the knowledge that one crack had been found in this area. The problem illustrated by this case does not lend itself to easy solution. The actual fatigue life was adequate and the frequency of costly

detailed inspections would have to be significantly increased to assure detection of fatigue cracks initiated by random service damage.

The short list computer printout is also included in Table 16 for the risk dominating wing lower surface center stringer elements (stations 0543 & 0807). Station 0543 element had a marginal fatigue life (i.e., 66752 hours vs. 120,000 hours) but as indicated by a fatigue test life of 9,999,999 hours, did not have a valid fatigue test and service repair and inspection costs did not justify a service modification; the D inspection interval was reduced as a result of service cracks but the dominate fatigue crack of 2.91 inches was never detected prior to retirement. This type of problem could be alleviated by a more complete or realistic fatigue test. Similar to fuselage stringer 1100, the dominate crack (4.23 inches) in station 0807 element was also initiated early by service damage and not detected prior to retirement under the long inspection intervals late in the program. However in this case the actual fatigue life was marginal but was not detected in a valid fatigue test and service cracks did not generate a service modification or an inspection interval reduction.

A short list computer printout is also included in table 4 for the risk dominating fuselage window frame element (station 0930). The short list and input data indicate that the initial element actual fatigue life was marginal. This was detected in the fatigue test thus generating a production modification but no retrofit on early service aircraft. Due to an error in the program, the production modification was not fatigue tested and had a higher but still marginal fatigue life. Service cracks detected on early unmodified elements generated a double reduction in the external D inspection interval to 2481 hours but no increase in sampling as no cracks were ever found in the internal sampling inspections. Apparently two internal cracks initiated simulataneously on opposite corners on aircraft 489 and grew at twice the rate of a single crack to a total length of 6.8 inches before becoming external. These cracks were subsequently missed in several external non-exploratory D and C inspections (A and B inspections were not considered effective for this area) and grew to a total length 8.08 inches when terminated by retirement. This type of problem could be alleviated by fatigue testing of modifications, more thorough evaluation and investigation of cracks detected in service and more frequent internal sampling.

Conclusions

A comparison between the results of the full demonstration, sample simulations and past service experience indicates that the revised program and input are reasonably realistic and that the sampling technique is adequate for use in trend studies of model parameters. These studies could be used as an aid in evaluation design and inspection criteria and practices. Responsible interested parties may obtain computer card decks for the program, demonstration and sample inputs on loan for duplication from AFS-510, Aeronautical Center, Federal Aviation Administration, Oklahoma City, Oklahoma.

TABLE 1. SUMMARY OF SAIFE DEMONSTRATION RESULTS

Element Type	(a) SAIFE Cracks Detected/ MRR-SDR Cracks		(b) First Cracks Occurring/ Cracks Detected		(c) % of Fail-Safe Length Equaled or Exceeded by 5 Longest Cracks		(d) Fail-Safe Crack Occurrences	
	Full	Sample	Full	Sample	Full	Sample	Full	Sample
Door Frame	3.02	14.90	1.49	1.36	26.60	—	0	—
Window Frame	8.67	19.36	2.75	2.28	38.95	—	0	—
Fuselage								
- Main Frame, Bottom	5.78	11.05	1.76	1.53	15.45	—	0	—
- Main Frame, Side	3.62	6.22	2.17	1.93	15.28	—	0	—
- Main Frame, Top	1.74	8.18	3.77	2.13	14.64	—	0	—
- Stringer, Bottom	1.74	1.60	3.10	2.73	41.00	—	2	3
- Stringer, Side	1.39	2.12	3.07	3.00	23.30	—	0	—
- Stringer, Top								
Wing								
- Access Frame	1.73	1.20	2.89	4.67	31.83	—	0	—
- Spar, Aft	0.33	0.96	1.56	2.36	13.59	—	0	—
- Spar, Center	83.80	19.33	2.13	8.06	22.45	—	0	—
- Spar, Forward	0.00	0.00	—	0.00	2.19	—	0	—
- Stringer, Aft	5.78	2.31	2.53	3.26	46.15	—	0	—
- Stringer, Center	3.37	3.91	3.05	3.38	53.31	—	0	—
- Stringer, Forward	0.30	0.45	9.07	8.44	26.00	—	0	—
						—	0	—
								—
Wing Center Section								
- Stringer, AFt	4.00	0.00	5.56	—	18.15	—	0	—
- Stringer, Center	0.00	0.00	—	—	7.15	—	0	—
- Stringer, Forward	0.00	0.00	—	—	1.15	—	0	—
- Spanwise Bean, Aft	0.00	1.94	3.18	1.86	21.56	—	0	—
- Spanwise Beam, Center	0.00	0.00	—	—	1.15	—	0	—
- Spanwise Beam, Forward	1.88	0.00	—	—	1.25	—	0	—
Pressure Loaded Total	4.57	4.12	1.92	1.81	49.70	41.40	0	3
Flight Loaded Total	1.72	2.07	3.29	3.13	67.25	86.25	2	—
Total	2.30	3.02	2.74	2.51			2	3

TABLE 1. (Continued)

Element	(e) Estimated Failure Rate Using Average Full	(e) Sample	(f) Estimated Failure Rate Full	(f) Sample	(g) Actual Failure Rate Full
Door Frame	2.54E-15	3.58E-15	6.70E-15	2.01E-13	*
Window Frame	5.02E-14	1.78E-14	1.16E-11	3.90E-14	
Fuselage					
- Main Frame, Bottom	4.54E-18	6.47E-18	4.54E-18	1.08E-15	
- Main Frame, Side	9.82E-18	9.49E-14	1.18E-16	1.84E-14	
- Main Frame, Top	6.70E-18	2.17E-17	6.70E-18	2.85E-16	
- Stringer, Bottom	1.61E-11	2.55E-13	3.63E-10	2.43E-10	
- Stringer, Side	2.45E-16	1.61E-17	2.45E-16	8.60E-17	
- Stringer, Top					
Wing					
- Access Frame	3.98E-12	2.90E-12	4.34E-12	3.82E-12	
- Spar, Aft	8.55E-13	1.30E-12	1.09E-12	1.44E-12	
- Spar, Center	1.85E-11	6.97E-12	6.19E-11	1.12E-11	
- Spar, Forward	1.95E-14	0.00E-00	1.61E-14	0.00E-00	
- Stringer, Aft	3.14E-12	2.80E-12	8.35E-12	3.99E-12	
- Stringer, Center	4.64E-12	1.22E-11	1.11E-10	1.64E-11	
- Stringer, Forward	4.63E-13	3.08E-12	2.04E-12	3.44E-12	
Wing Center Section					
- Stringer, Aft	7.81E-13	3.08E-14	7.57E-13	0.00E-00	
- Stringer, Center	2.90E-14	1.49E-15	2.60E-14	0.00E-00	
- Stringer, Forward	5.07E-15	0.00E-00	4.37E-15	0.00E-00	
- Spanwise Beam, Aft	1.18E-12	3.49E-13	5.86E-12	9.88E-13	
- Spanwise Beam, Center	1.54E-13	1.94E-13	1.38E-13	0.00E-00	
- Spanwise Beam, Forward	7.39E-14	4.69E-15	5.83E-14	0.00E-00	
Pressure Loaded Total	4.80E-14	1.03E-14	6.26E-13	4.23E-14	
Flight Loaded Total	6.71E-11	3.02E-11	7.51E-10	2.84E-10	
Total	5.00E-11	3.02E-11	5.83E-10	2.84E-10	

* Note: No actual failures occured in demonstration run.

TABLE 2A

COMPARISON OF CRACKS DETECTED AT EACH INSPECTION LEVEL PER MILLION FLIGHT HOURS

	FULL		SAMPLE		MRR-SDR	
	Cracks Detected	% of Total	Cracks Detected	% of Total	Cracks Detected	% of Total
Preflight	24.87	9.56	25.34	7.82	2.87	4.3
Service	20.89	8.03	20.81	6.42	7.93	11.8
Phase	28.49	10.95	29.86	9.22	10.94	16.3
Overhaul	147.24	56.59	200.45	61.87	24.21	36.1
Special	38.69	14.87	47.51	14.66	21.14	31.5
Total	260.18	100.00	323.98	100.00	67.09	100.0

TABLE 2B COMPARISON OF SIZE OF CRACKS DETECTED

	FULL Average Length (inches)	SAMPLE Average Length (inches)	MRR-SDR Average Length Where reported (inches)
Preflight	1.573	1.943	---
Service	1.719	1.812	---
Phase	1.688	2.505	---
Overhaul	1.375	1.467	---
Special	1.771	2.014	---
Fuselage Total	1.741	1.815	1.99
Wing Total	1.118	1.470	2.16
Total	1.515	1.718	2.089 (1.567)*

* All reports, assuming 5/8" length when not reported.

TABLE 3. DEMONSTRATION RESULTS FOR DOOR FRAME
(FUS-DOR-FRM & FUS DOR-FRF)

	Defects Per Million Flight Hours		
	SAIFE (*)		MRR/SDR
Crack Detected			
Preflight	0.00	(0.00)	0.16
Service	0.47	(0.00)	0.08
Phase	1.73	(0.20)	0.93
Overhaul	5.54	(0.07)	0.55
Special	3.13	(0.33)	0.08
Total	10.87	(0.60)	1.80
Corrosion Detected			
Preflight	0.00	(0.00)	0.00
Service	0.74	(0.07)	0.06
Phase	0.20	(0.00)	0.12
Overhaul	14.93	(13.33)	0.12
Special	0.33	(0.00)	0.00
Total	16.28	(13.40)	0.30
Fail-Safe Damage	0.00	(0.00)	0.02
Failures	0.00	(0.00)	----
Service Damage	0.23	(0.00)	0.15
Production Defects	0.00	(0.00)	0.00

(*) FUS-DOR-FRF only

AIRCRAFT TYPE: HYBRID

NUMBER OF AIRCRAFT IN FLEET: 500 AIRCRAFT SERVICE LIFE: 60000 HOURS

SUMMARY OF STRUCTURAL ELEMENT: FUS-DOR-FRM

NUMBER AND TIME TO INITIATION OF AIRCRAFT DEFECTS

	FIRST CRACK	CORROSION	SERVICE DAMAGE	PRODUCTION DEFECTS
OCCURRENCES	228	42	8	0
MIN(HRS)	3309	716	3309	-----
MAX(HRS)	59790	58651	54863	-----
AVG(HRS)	45571	32796	29277	-----

NUMBER AND LENGTH OF CRACKS DETECTED AT EACH LEVEL OF INSPECTION

	A-LEVEL	B-LEVEL	C-LEVEL	D-LEVEL	SPECIAL
OCCURRENCES	0	7	23	82	42
MIN(IN)	0.	.93	.70	.31	.29
MAX(IN)	0.	5.07	8.61	8.86	8.89
AVG(IN)	0.	2.59	2.77	1.67	2.90

NUMBER AND AREA OF CORROSION DEFECTS DETECTED AT EACH LEVEL OF INSPECTION

	A-LEVEL	B-LEVEL	C-LEVEL	D-LEVEL	SPECIAL
OCCURRENCES	0	18	3	24	5
MIN(SQ.IN)	0.	2.92	3.85	.79	2.50
MAX(SQ.IN)	0.	26.21	39.27	121.48	75.86
AVG(SQ.IN)	0.	12.71	18.62	15.93	31.83
INSPECTION INTERVALS(HRS)					
INITIAL	50	375	1080	1600	
SHORTEST	50	375	1080	1600	
LONGEST	50	375	2815	18984	

NUMBER OF SPECIAL INSPECTIONS CONDUCTED: 5
NUMBER OF STRUCTURAL MODIFICATIONS: 2
NUMBER OF AIRCRAFT MODIFIED IN SERVICE: 75
ESTIMATED ELEMENT TYPE FAILURE RATE USING AVG: 4.57E-15/HR
ESTIMATED ELEMENT TYPE FAILURE RATE: 7.87E-15/HR.
SAMPLE CRK. LGT. MEAN(IN) 2.11 SAMPLE STD. DEV. 1.722
CRK. LGT. VS PROBABILITY CURVE FIT CONST: A = -10.774865334145 B = .320231539200

STRUCTURAL FAILURES

AIRCRAFT NO.	FLT. HOURS	STA. NO.

RESIDUAL STRENGTH EQUALS FAIL-SAFE STRENGTH

AIRCRAFT NO.	FLT. HOURS	STA. NO.

AVERAGE FLIGHT CRACKS	0.	0.	0.	0.	0.
AVERAGE PRESSURE CRACKS	.413	.413	.294	.294	.293

AIRCRAFT TYPE: HYBRID

NUMBER OF AIRCRAFT IN FLEET: 500 AIRCRAFT SERVICE LIFE: 60000 HOURS

SUMMARY OF STRUCTURAL ELEMENT: FUS-DOR-FRF

NUMBER AND TIME TO INITIATION OF AIRCRAFT DEFECTS

	FIRST CRACK	CORROSION	SERVICE DAMAGE	PRODUCTION DEFECTS
OCCURRENCES	16	5	0	0
MIN(HRS)	18217	2565	0	-----
MAX(HRS)	59681	54228	0	-----
AVG(HRS)	42426	23773	0	-----

NUMBER AND LENGTH OF CRACKS DETECTED AT EACH LEVEL OF INSPECTION

	A-LEVEL	B-LEVEL	C-LEVEL	D-LEVEL	SPECIAL
OCCURRENCES	0	0	3	1	0
MIN(IN)	0.	0.	3.72	1.82	1.26
MAX(IN)	0.	0.	7.38	1.82	5.25
AVG(IN)	0.	0.	5.36	1.82	3.07

NUMBER AND AREA OF CORROSION DEFECTS DETECTED AT EACH LEVEL OF INSPECTION

	A-LEVEL	B-LEVEL	C-LEVEL	D-LEVEL	SPECIAL
OCCURRENCES	0	1	0	2	0
MIN(SQ.IN)	0.	15.28	0.	7.32	0.
MAX(SQ.IN)	0.	15.28	0.	28.76	0.
AVG(SQ.IN)	0.	15.28	0.	18.04	0.
INSPECTION INTERVALS(HRS)					
INITIAL	50	375	1000	1600	
SHORTEST	50	375	1000	1600	
LONGEST	50	375	3525	23738	

NUMBER OF SPECIAL INSPECTIONS CONDUCTED: 1
NUMBER OF STRUCTURAL MODIFICATIONS: 0
NUMBER OF AIRCRAFT MODIFIED-IN SERVICE: 0
ESTIMATED ELEMENT TYPE FAILURE RATE USING AVG: 5.81E-16/HR
ESTIMATED ELEMENT TYPE FAILURE RATE: 5.53E-15/HR.
SAMPLE CRK. LGT. MEAN(IN) 3.48 SAMPLE STD. DEV. 2.988
CRK. LGT. VS PROBABILITY CURVE FIT CONST: A = -18.793726436882 B = .315656426939

STRUCTURAL FAILURES

AIRCRAFT NO.	FLT. HOURS	STA. NO.

RESIDUAL STRENGTH EQUALS FAIL-SAFE STRENGTH

AIRCRAFT NO.	FLT. HOURS	STA. NO.

AVERAGE FLIGHT CRACKS	.245	.245	.244	.244	.174
AVERAGE PRESSURE CRACKS	.413	.413	.294	.294	.293

TABLE 4. DEMONSTRATION RESULTS FOR WINDOW FRAME
(FUS-WIN-FRM & FUS-WIN-FRF)

	Defects Per Million Flight Hours		
	SAIFE (*)		MRR/SDR
Crack Detected			
Preflight	0.00	(0.00)	0.06
Service	0.00	(0.00)	0.06
Phase	2.74	(0.67)	0.12
Overhaul	13.40	(0.80)	0.67
Special	2.86	(0.33)	0.18
Total	19.00	(1.80)	1.09
Corrosion Detected			
Preflight	0.00	(0.00)	0.02
Service	0.00	(0.00)	0.00
Phase	0.00	(0.00)	0.02
Overhaul	0.27	(0.07)	0.02
Special	0.00	(0.00)	0.02
Total	0.27	(0.07)	0.08
Fail-Safe Damage	0.00	(0.00)	0.02
Failures	0.00	(0.23)	----
Service Damage	0.43	(0.07)	0.18
Production Defects	0.23	(0.23)	0.00

(*) FUS-WIN-FRF only

...PE: HYBRID

NUMBER OF AIRCRAFT IN FLEET: 500 AIRCRAFT SERVICE LIFE: 60000 HOURS

SUMMARY OF STRUCTURAL ELEMENT: FUS-MID-FRM

NUMBER AND TIME TO INITIATION OF AIRCRAFT DEFECTS

	FIRST CRACK	CORROSION	SERVICE DAMAGE	PRODUCTION DEFECTS
OCCURRENCES	799	5	28	3
MIN(HRS)	620	4116	620	-----
MAX(HRS)	59977	55596	59112	-----
AVG(HRS)	45547	36718	31916	-----

NUMBER AND LENGTH OF CRACKS DETECTED AT EACH LEVEL OF INSPECTION

	A-LEVEL	B-LEVEL	C-LEVEL	D-LEVEL	SPECIAL
OCCURRENCES	0	0	31	189	32
MIN(IN)	0.	0.	.41	.21	.63
MAX(IN)	0.	0.	2.99	5.61	6.45
AVG(IN)	0.	0.	1.41	1.22	1.24

NUMBER AND AREA OF CORROSION DEFECTS DETECTED AT EACH LEVEL OF INSPECTION

	A-LEVEL	B-LEVEL	C-LEVEL	D-LEVEL	SPECIAL
OCCURRENCES	0	0	0	3	0
MIN(SQ.IN)	0.	0.	0.	2.26	0.
MAX(SQ.IN)	0.	0.	0.	24.17	0.
AVG(SQ.IN)	0.	0.	0.	12.47	0.
INSPECTION INTERVALS(HRS)					
INITIAL	50	375	1086	3200	
SHORTEST	50	375	1060	1985	
LONGEST	50	375	3129	31641	

NUMBER OF SPECIAL INSPECTIONS CONDUCTED: 13
NUMBER OF STRUCTURAL MODIFICATIONS: 19
NUMBER OF AIRCRAFT MODIFIED IN SERVICE: 268
ESTIMATED ELEMENT TYPE FAILURE RATE USING AVG: 4.34E-14/HR
ESTIMATED ELEMENT TYPE FAILURE RATE: 6.18E-13/HR.
SAMPLE CRK. LGT. MEAN(IN) 1.15 SAMPLE STD. DEV. 1.076
CRK. LGT. VS PROBABILITY CURVE FIT CONST: A = -18.757431124133 B = .630644676572

STRUCTURAL FAILURES

AIRCRAFT NO.	FLT. HOURS	STA. NO.

RESIDUAL STRENGTH EQUALS FAIL-SAFE STRENGTH

AIRCRAFT NO.	FLT. HOURS	STA. NO.

AVERAGE FLIGHT CRACKS	1.605	1.605	.818	.818	.649
AVERAGE PRESSURE CRACKS	.561	.561	.471	.471	.448

AIRCRAFT TYPE: HYBRID

NUMBER OF AIRCRAFT IN FLEET: 500 AIRCRAFT SERVICE LIFE: 60000 HOURS

SUMMARY OF STRUCTURAL ELEMENT: FUS-WIN-FRF

NUMBER AND TIME TO INITIATION OF AIRCRAFT DEFECTS

	FIRST CRACK	CORROSION	SERVICE DAMAGE	PRODUCTION DEFECTS
OCCURRENCES	75	1	3	7
MIN(HRS)	252	3216	2337	-----
MAX(HRS)	59688	3216	22936	-----
AVG(HRS)	41554	3216	15293	-----

NUMBER AND LENGTH OF CRACKS DETECTED AT EACH LEVEL OF INSPECTION

	A-LEVEL	B-LEVEL	C-LEVEL	D-LEVEL	SPECIAL
OCCURRENCES	0	0	18	12	5
MIN(IN)	0.	0.	.72	.44	2.44
MAX(IN)	0.	0.	2.66	6.15	3.64
AVG(IN)	0.	0.	2.87	2.48	2.95

NUMBER AND AREA OF CORROSION DEFECTS DETECTED AT EACH LEVEL OF INSPECTION

	A-LEVEL	B-LEVEL	C-LEVEL	D-LEVEL	SPECIAL
OCCURRENCES	0	0	0	1	0
MIN(SQ.IN)	0.	0.	0.	3.17	0.
MAX(SQ.IN)	0.	0.	0.	3.17	0.
AVG(SQ.IN)	0.	0.	0.	3.17	0.
INSPECTION INTERVALS(HRS)					
INITIAL	50	375	1000	3288	
SHORTEST	50	375	1000	3288	
LONGEST	50	375	3129	31641	

NUMBER OF SPECIAL INSPECTIONS CONDUCTED: 3
NUMBER OF STRUCTURAL MODIFICATIONS: 2
NUMBER OF AIRCRAFT MODIFIED IN SERVICE: 138
ESTIMATED ELEMENT TYPE FAILURE RATE USING AVG: 6.77E - 15/HR
ESTIMATED ELEMENT TYPE FAILURE RATE: 1.10E - 11/HR
SAMPLE CRK. LGT. MEAN(IN) 1.93 SAMPLE STD. DEV. 1.341
CRK. LGT. VS PROBABILITY CURVE FIT CONST: A = -10.835435890637 B = .6018585140886

STRUCTURAL FAILURES			RESIDUAL STRENGTH EQUALS FAIL-SAFE STRENGTH		
AIRCRAFT NO.	FLT. HOURS	STA. NO.	AIRCRAFT NO.	FLT. HOURS	STA. NO.

AVERAGE FLIGHT CRACKS	1.605	1.605	.818	.818	.649
AVERAGE PRESSURE CRACKS	.561	.561	.471	.471	.468

RANDOM NUMBER SEEDS

SEED(1) =	5449151413[illegible]425
SEED(2) =	41[illegible]87917837428
SEED(3) =	263[illegible]33254[illegible]6896
SEED(4) =	18663639437279
SEED(5) =	275634274687416
SEED(6) =	2802919179[illegible]9545
SEED(7) =	134373248[illegible]3682
SEED(8) =	1986364283[illegible]5554
SEED(9) =	158588139651853
SEED(10) =	19832178453[illegible]934

NON-EXPLORATORY DETECTION LEVEL AT 52399 MODIFICATION 1

ICPM =	0.	MCPM =	.851	RCPM =	.812	TIME =	52399
ICPM =	0.	MCPM =	.863	RCPM =	.893	TIME =	57208
ICPM =	.001	MCPM =	.878	RCPM =	.817	TIME =	59315
ICPM =	.001	MCPM =	.875	RCPM =	.886	TIME =	66757
ICPM =	.001	MCPM =	.891	RCPM =	.886	TIME =	69238
ICPM =	.001	MCPM =	.232	RCPM =	.884	TIME =	81641

AIRCRAFT TYPE: HYBRID

NUMBER OF AIRCRAFT IN FLEET: 500 AIRCRAFT SERVICE LIFE: 60000 HOURS

STRUCTURAL ELEMENT: FUS-WIN-FRM-0930

PREDICTED AVERAGE FATIGUE LIFE: 229410 HOURS ACTUAL AVERAGE FATIGUE LIFE: 78114 HOURS
FATIGUE TEST LIFE: 69033 HOURS

NUMBER AND TIME TO INITIATION OF AIRCRAFT DEFECTS

	FIRST CRACK	CORROSION	SERVICE DAMAGE	PRODUCTION DEFECTS
OCCURRENCES	34	0	0	0
MIN(HRS)	13237	0	0	-----
MAX(HRS)	59951	0	0	-----
AVG(HRS)	45699	0	0	-----

NUMBER AND LENGTH OF CRACKS DETECTED AT EACH LEVEL OF INSPECTION

	A-LEVEL	B-LEVEL	C-LEVEL	D-LEVEL	SPECIAL
OCCURRENCES	0	0	3	4	9
MIN(IN)	0.	0.	1.45	.65	1.34
MAX(IN)	0.	0.	2.81	2.26	6.45
AVG(IN)	0.	0.	2.00	1.21	2.87

NUMBER AND AREA OF CORROSION DEFECTS DETECTED AT EACH LEVEL OF INSPECTION

	A-LEVEL	B-LEVEL	C-LEVEL	D-LEVEL	SPECIAL
OCCURRENCES	0	0	0	0	0
MIN(SQ.IN)	0.	0.	0.	0.	0.
MAX(SQ.IN)	0.	0.	0.	0.	0.
AVG(SQ.IN)	0.	0.	0.	0.	0.

INSPECTION INTERVALS(HRS)					MOD NO	SAMPLING	TIME
INITIAL	50	375	1000	3200	0	15	
2	50	375	1125	4800	1	11	3800
3	50	375	1266	7200	1	8	4600
4	50	375	1424	10800	1	6	15800
5	50	375	1602	16200	1	5	26600
6	50	375	2002	20250	1	6	42800
7	50	375	2002	7088	1	17	59315
8	50	375	2002	2481	1	49	59315

CRACK LENGTHS AND CORRESPONDING CUMULATIVE PROBABILITY OF FAILURE

AIRCRAFT NO.	FLT. HOURS	CRK.LGT.	PROB. OF FAILURE
141	43249	2.81	6.8E-10
28	54861	1.73	1.9E-10

149	47250	.71	3.6E-11
23	58065	3.[illegible]	1.5E-09
7	58865	6.78	2.7E-08
9	58765	2.8[illegible]	6.9E-1[illegible]
24	58815	1.39	1.4E-10
32	57615	2.75	6.7E-10
37	57365	6.45	3.8E-08
41	57165	1.34	1.1E-10
84	55815	4.18	3.1E-09
280	44265	2.76	6.0E-10
341	38165	3.11	5.0E-10
10	30000	.34	1.7E-11
11	30000	.18	9.7E-12
27	60000	2.22	3.9E-10
48	60000	.39	1.7E-11
49	60000	.33	1.5E-11
72	60000	1.07	7.7E-11
79	60000	.53	2.9E-11
87	60000	.01	3.1E-13
173	54407	1.21	1.9E-10
210	52388	2.26	3.5E-10
158	50000	.98	6.1E-11
288	50000	3.36	1.2E-09
228	50000	2.82	4.9E-10
245	50000	.16	6.0E-12
298	56791	.65	2.7E-11
271	50000	.97	5.6E-11
293	50000	1.73	1.6E-10
357	50000	.84	4.7E-11
414	50000	4.78	1.8E-09
488	50000	1.03	6.6E-11
489	50000	8.08	2.7E-07

NUMBER OF SPECIAL INSPECTIONS CONDUCTED: 1
NUMBER OF STRUCTURAL MODIFICATIONS: 1
FINAL ACTUAL AVERAGE MODIFIED FATIGUE LIFE: 114311 HOURS
NUMBER OF AIRCRAFT MODIFIED IN SERVICE: 0
ESTIMATED ELEMENT FAILURE RATE: 1.18E-14/HR.

STRUCTURAL FAILURES

AIRCRAFT NO.	FLT. HOURS

RESIDUAL STRENGTH EQUALS FAIL-SAFE STRENGTH

AIRCRAFT NO.	FLT. HOURS

TABLE 5. DEMONSTRATION RESULTS FOR FUSELAGE - MAIN FRAME, BOTTOM

	Defects Per Million Flight Hours	
	SAIFE	MRR/SDR
Crack Detected		
Preflight	5.83	0.57
Service	2.80	0.67
Phase	1.30	0.47
Overhaul	9.80	1.53
Special	1.27	0.38
Total	21.00	3.62
Corrosion Detected		
Preflight	0.43	0.34
Service	0.13	1.10
Phase	0.07	0.41
Overhaul	1.83	1.99
Special	0.63	0.55
Total	3.09	4.39
Fail-Safe Damage	0.00	0.22
Failures	0.00	----
Service Damage	0.73	0.44
Production Defects	0.17	0.06

AIRCRAFT TYPE: HYBRID

NUMBER OF AIRCRAFT IN FLEET: 500 AIRCRAFT SERVICE LIFE: 60000 HOURS

SUMMARY OF STRUCTURAL ELEMENT: FUS-WEB-BOT

NUMBER AND TIME TO INITIATION OF AIRCRAFT DEFECTS

	FIRST CRACK	CORROSION	SERVICE DAMAGE	PRODUCTION DEFECTS
OCCURRENCES	1111	278	28	5
MIN(HRS)	322	112	945	-----
MAX(HRS)	59979	59657	57826	-----
AVG(HRS)	44982	38535	32413	-----

NUMBER AND LENGTH OF CRACKS DETECTED AT EACH LEVEL OF INSPECTION

	A-LEVEL	B-LEVEL	C-LEVEL	D-LEVEL	SPECIAL
OCCURRENCES	175	84	39	794	34
MIN(IN)	.65	.66	.67	.21	.33
MAX(IN)	7.66	5.41	5.34	6.89	7.81
AVG(IN)	2.20	2.22	2.89	1.71	2.84

NUMBER AND AREA OF CORROSION DEFECTS DETECTED AT EACH LEVEL OF INSPECTION

	A-LEVEL	B-LEVEL	C-LEVEL	D-LEVEL	SPECIAL
OCCURRENCES	13	4	2	55	19
MIN(SQ.IN)	1.74	4.39	2.48	1.34	2.42
MAX(SQ.IN)	38.11	16.29	6.52	179.13	134.2[illegible]
AVG(SQ.IN)	12.42	8.23	4.66	41.64	47.[illegible]

INSPECTION INTERVALS(HRS)				
INITIAL	50	375	1000	1600
SHORTEST	50	375	1000	1600
LONGEST	50	375	5000	32000

NUMBER OF SPECIAL INSPECTIONS CONDUCTED: 37
NUMBER OF STRUCTURAL MODIFICATIONS: 17
NUMBER OF AIRCRAFT MODIFIED IN SERVICE: 1373
ESTIMATED ELEMENT TYPE FAILURE RATE USING AVG: 4.54E-10/HR
ESTIMATED ELEMENT TYPE FAILURE RATE: 4.54E-10/HR.
SAMPLE CRK. LGT. MEAN(IN) 1.69 SAMPLE STD. DEV. 1.301
CRK. LGT. VS PROBABILITY CURVE FIT CONST: A = -13.967645224737 B = .484705899766

STRUCTURAL FAILURES			RESIDUAL STRENGTH EQUALS FAIL-SAFE STRENGTH		
AIRCRAFT NO.	FLT. HOURS	STA. NO.	AIRCRAFT NO.	FLT. HOURS	STA. NO.

AVERAGE FLIGHT CRACKS	1.695	1.695	.818	.818	.649
AVERAGE PRESSURE CRACKS	.561	.561	.471	.471	.448

TABLE 6. DEMONSTRATION RESULTS FOR FUSELAGE - MAIN FRAME, SIDE (FUS-MFR-SID & FUS-MFF-SID)

	Defects Per Million Flight Hours SAIFE (*)	MRR/SDR
Crack Detected		
Preflight	0.00 (0.00)	0.34
Service	0.00 (0.00)	0.69
Phase	4.80 (1.40)	0.76
Overhaul	29.07 (8.67)	3.57
Special	10.06 (5.33)	0.69
Total	43.93(15.40)	6.05
Corrosion Detected		
Preflight	0.00 (0.00)	0.00
Service	0.00 (0.00)	0.07
Phase	0.20 (0.13)	0.07
Overhaul	2.00 (1.33)	0.54
Special	0.20 (0.07)	0.07
Total	2.40 (1.53)	0.75
Fail-Safe Damage	0.00 (0.00)	0.04
Failures	0.00 (0.00)	---
Service Damage	0.50 (0.03)	0.33
Production Defects	0.07 (0.00)	0.15

(*) FUS-MFF-SID only

AIRCRAFT TYPE: HYBRID

NUMBER OF AIRCRAFT IN FLEET: 500 AIRCRAFT SERVICE LIFE: 60000 HOURS

SUMMARY OF STRUCTURAL ELEMENT: FUS-MFR-SID

NUMBER AND TIME TO INITIATION OF AIRCRAFT DEFECTS

	FIRST CRACK	CORROSION	SERVICE DAMAGE	PRODUCTION DEFECTS
OCCURRENCES	871	45	22	6
MIN(HRS)	1553	101	3538	-----
MAX(HRS)	59937	59365	57862	-----
AVG(HRS)	43131	36653	27932	-----

NUMBER AND LENGTH OF CRACKS DETECTED AT EACH LEVEL OF INSPECTION

	A-LEVEL	B-LEVEL	C-LEVEL	D-LEVEL	SPECIAL
OCCURRENCES	0	0	51	306	71
MIN(IN)	0.	0.	.47	.19	.23
MAX(IN)	0.	0.	4.16	6.74	7.14
AVG(IN)	0.	0.	1.68	1.62	2.23

NUMBER AND AREA OF CORROSION DEFECTS DETECTED AT EACH LEVEL OF INSPECTION

	A-LEVEL	B-LEVEL	C-LEVEL	D-LEVEL	SPECIAL
OCCURRENCES	0	0	1	16	2
MIN(SQ.IN)	0.	0.	10.31	2.35	6.44
MAX(SQ.IN)	0.	0.	10.31	76.78	52.76
AVG(SQ.IN)	0.	0.	10.31	18.54	29.60

INSPECTION INTERVALS(HRS)

INITIAL	50	375	1000	1600
SHORTEST	50	375	1000	1600
LONGEST	50	375	4399	31641

NUMBER OF SPECIAL INSPECTIONS CONDUCTED: 17
NUMBER OF STRUCTURAL MODIFICATIONS: 14
NUMBER OF AIRCRAFT MODIFIED IN SERVICE: 1301
ESTIMATED ELEMENT TYPE FAILURE RATE USING AVG: 9.80E-18/HR
ESTIMATED ELEMENT TYPE FAILURE RATE: 2.88E-17/HR.
SAMPLE CRK. LGT. MEAN(IN) 1.51 SAMPLE STD. DEV. 1.23
CRK. LGT. VS PROBABILITY CURVE FIT CONST: A = -13.580978335637 B = .3660864481136

STRUCTURAL FAILURES			RESIDUAL STRENGTH EQUALS FAIL-SAFE STRENGTH		
AIRCRAFT NO.	FLT. HOURS	STA. NO.	AIRCRAFT NO.	FLT. HOURS	STA. NO.

AVERAGE FLIGHT CRACKS	1.605	1.605	.818	.818	.649
AVERAGE PRESSURE CRACKS	.561	.561	.471	.471	.448

AIRCRAFT TYPE: HYBRID

NUMBER OF AIRCRAFT IN FLEET: 500 AIRCRAFT SERVICE LIFE: 60000 HOURS

SUMMARY OF STRUCTURAL ELEMENT: FUS-WFF-SID

NUMBER AND TIME TO INITIATION OF AIRCRAFT DEFECTS

	FIRST CRACK	CORROSION	SERVICE DAMAGE	PRODUCTION DEFECTS
OCCURRENCES	559	69	5	0
MIN(HRS)	7135	949	32178	-----
MAX(HRS)	59956	54229	58711	-----
AVG(HRS)	42349	11792	47876	-----

NUMBER AND LENGTH OF CRACKS DETECTED AT EACH LEVEL OF INSPECTION

	A-LEVEL	B-LEVEL	C-LEVEL	D-LEVEL	SPECIAL
OCCURRENCES	0	0	21	130	0
MIN(IN)	0.	0.	.51	.32	.26
MAX(IN)	0.	0.	4.51	6.66	5.36
AVG(IN)	0.	0.	1.75	1.98	1.73

NUMBER AND AREA OF CORROSION DEFECTS DETECTED AT EACH LEVEL OF INSPECTION

	A-LEVEL	B-LEVEL	C-LEVEL	D-LEVEL	SPECIAL
OCCURRENCES	0	0	2	20	1
MIN(SQ.IN)	0.	0.	3.84	1.74	39.48
MAX(SQ.IN)	0.	0.	7.16	88.28	39.48
AVG(SQ.IN)	0.	0.	5.52	27.59	39.48
INSPECTION INTERVALS(HRS)					
INITIAL	58	375	1000	1690	
SHORTEST	58	375	1000	1690	
LONGEST	58	375	4399	29663	

NUMBER OF SPECIAL INSPECTIONS CONDUCTED: 0
NUMBER OF STRUCTURAL MODIFICATIONS: 16
NUMBER OF AIRCRAFT MODIFIED IN SERVICE: 1148
ESTIMATED ELEMENT TYPE FAILURE RATE USING AVG: 9.83E-18/HR
ESTIMATED ELEMENT TYPE FAILURE RATE: 2.87E-16/HR.
SAMPLE CRK. LGT. MEAN(IN) 1.62 SAMPLE STD. DEV. 1.513
CRK. LGT. VS PROBABILITY CURVE FIT CONST: A = -13.56281418445 B = .347369895239

STRUCTURAL FAILURES			RESIDUAL STRENGTH EQUALS FAIL-SAFE STRENGTH		
AIRCRAFT NO.	FLT. HOURS	STA. NO.	AIRCRAFT NO.	FLT. HOURS	STA. NO.

AVERAGE FLIGHT CRACKS	1.605	1.605	.818	.818	.645
AVERAGE PRESSURE CRACKS	.561	.561	.471	.471	.448

TABLE 7. DEMONSTRATION RESULTS FOR FUSELAGE - MAIN FRAME, TOP

	Defects Per Million Flight Hours	
	SAIFE	MRR/SDR
Crack Detected		
Preflight	0.00	0.00
Service	0.00	0.00
Phase	2.23	2.86
Overhaul	6.07	1.57
Special	1.37	1.14
Total	9.67	5.57
Corrosion Detected		
Preflight	0.00	0.00
Service	0.00	0.00
Phase	0.07	0.00
Overhaul	0.33	0.00
Special	0.07	0.00
Total	0.47	0.00
Fail-Safe Damage	0.00	0.00
Failures	0.00	----
Service Damage	0.33	0.02
Production Defects	0.10	0.15

AIRCRAFT TYPE: HYBRID

NUMBER OF AIRCRAFT IN FLEET: 500 AIRCRAFT SERVICE LIFE: 60000 HOURS

SUMMARY OF STRUCTURAL ELEMENT: FUS-MFR-TOP

NUMBER AND TIME TO INITIATION OF AIRCRAFT DEFECTS

	FIRST CRACK	CORROSION	SERVICE DAMAGE	PRODUCTION DEFECTS
OCCURRENCES	1093	47	28	4
MIN(HRS)	979	813	3807	------
MAX(HRS)	59981	58613	58063	------
AVG(HRS)	45421	31215	32395	------

NUMBER AND LENGTH OF CRACKS DETECTED AT EACH LEVEL OF INSPECTION

	A-LEVEL	B-LEVEL	C-LEVEL	D-LEVEL	SPECIAL
OCCURRENCES	0	0	47	182	41
MIN(IN)	0.	0.	.54	.20	.35
MAX(IN)	0.	0.	4.57	5.92	6.33
AVG(IN)	0.	0.	1.80	1.76	2.08

NUMBER AND AREA OF CORROSION DEFECTS DETECTED AT EACH LEVEL OF INSPECTION

	A-LEVEL	B-LEVEL	C-LEVEL	D-LEVEL	SPECIAL
OCCURRENCES	0	0	2	16	2
MIN(SQ.IN)	0.	0.	13.58	1.95	44.63
MAX(SQ.IN)	0.	0.	17.58	47.22	51.19
AVG(SQ.IN)	0.	0.	15.59	21.95	47.91

INSPECTION INTERVALS(HRS)				
INITIAL	50	375	1000	7200
SHORTEST	50	375	1000	1000
LONGEST	50	375	6667	32000

NUMBER OF SPECIAL INSPECTIONS CONDUCTED: 14
NUMBER OF STRUCTURAL MODIFICATIONS: 23
NUMBER OF AIRCRAFT MODIFIED IN SERVICE: 1206
ESTIMATED ELEMENT TYPE FAILURE RATE USING AVG: 6.70E-18/HR
ESTIMATED ELEMENT TYPE FAILURE RATE: 6.70E-18/HR.
SAMPLE CRK. LGT. MEAN(IN) 1.42 SAMPLE STD. DEV. 1.242
CRK. LGT. VS PROBABILITY CURVE FIT CONST: A = -13.675825818191 = = .+15481209472

STRUCTURAL FAILURES			RESIDUAL STRENGTH EQUALS FAIL-SAFE STRENGTH		
AIRCRAFT NO.	FLT. HOURS	STA. NO.	AIRCRAFT NO.	FLT. HOURS	STA. NO.

AVERAGE FLIGHT CRACKS	1.485	1.485	.818	.818	.649
AVERAGE PRESSURE CRACKS	.561	.561	.471	.471	.448

TABLE 8. FUSELAGE - STRINGER, BOTTOM (NOT INCLUDED IN REVISED DEMONSTRATION

TABLE 9. DEMONSTRATION RESULTS FOR FUSELAGE - STRINGER, SIDE

	Defects Per Million Flight Hours	
	SAIFE	MRR/SDR
Crack Detected		
Preflight	0.00	0.34
Service	0.00	0.69
Phase	1.80	0.76
Overhaul	14.40	3.57
Special	4.87	0.69
Total	21.07	6.05
Corrosion Detected		
Preflight	0.00	0.00
Service	0.00	0.07
Phase	0.73	0.07
Overhaul	1.40	0.54
Special	0.07	0.07
Total	2.20	0.75
Fail-Safe Damage	0.03	0.04
Failures	0.00	---
Service Damage	0.20	0.33
Production Defects	0.17	0.15

AIRCRAFT TYPE: HYBRID

NUMBER OF AIRCRAFT IN FLEET: 500 AIRCRAFT SERVICE LIFE: 60000 HOURS

SUMMARY OF STRUCTURAL ELEMENT: FUS-STR-SID

NUMBER AND TIME TO INITIATION OF AIRCRAFT DEFECTS

	FIRST CRACK	CORROSION	SERVICE DAMAGE	PRODUCTION DEFECTS
OCCURRENCES	981	51	24	5
MIN(HRS)	683	2878	4014	-----
MAX(HRS)	59991	59624	55672	-----
AVG(HRS)	44668	38369	31952	-----

NUMBER AND LENGTH OF CRACKS DETECTED AT EACH LEVEL OF INSPECTION

	A-LEVEL	B-LEVEL	C-LEVEL	D-LEVEL	SPECIAL
OCCURRENCES	0	0	27	216	73
MIN(IN)	0.	0.	.59	.18	.27
MAX(IN)	0.	0.	15.91	4.68	3.24
AVG(IN)	0.	0.	2.87	1.31	1.47

NUMBER AND AREA OF CORROSION DEFECTS DETECTED AT EACH LEVEL OF INSPECTION

	A-LEVEL	B-LEVEL	C-LEVEL	D-LEVEL	SPECIAL
OCCURRENCES	0	0	11	21	1
MIN(SQ.IN)	0.	0.	3.17	3.31	46.9
MAX(SQ.IN)	0.	0.	35.64	29.42	46.9
AVG(SQ.IN)	0.	0.	12.54	13.14	46.9

INSPECTION INTERVALS(HRS)				
INITIAL	56	375	1000	1660
SHORTEST	56	375	1000	814
LONGEST	56	375	5000	32000

NUMBER OF SPECIAL INSPECTIONS CONDUCTED: 21
NUMBER OF STRUCTURAL MODIFICATIONS: 21
NUMBER OF AIRCRAFT MODIFIED IN SERVICE: 1690
ESTIMATED ELEMENT TYPE FAILURE RATE USING AVG: 1.61E-11/HR
ESTIMATED ELEMENT TYPE FAILURE RATE: 3.63E-10/HR.
SAMPLE CRK. LGT. MEAN(IN) 1.17 SAMPLE STD. DEV. 1.589
CRK. LGT. VS PROBABILITY CURVE FIT CONST: A = -10.6668342933991 B = .3834899422778

STRUCTURAL FAILURES

AIRCRAFT NO.	FLT. HOURS	STA. NO.

RESIDUAL STRENGTH EQUALS FAIL-SAFE STRENGTH

AIRCRAFT NO.	FLT. HOURS	STA. NO.
403	56255	1100

AVERAGE FLIGHT CRACKS 1.665 1.665 .818 .818 .543

```
RANDOM NUMBER SEEDS
SEED( 1) =       110646998248688
SEED( 2) =       178194857769241
SEED( 3) =        39223228592327
SEED( 4) =       213492109276888
SEED( 5) =        88664054951839
SEED( 6) =        74565644765561
SEED( 7) =       264918208853471
SEED( 8) =       118753385787775
SEED( 9) =       117068817888761
SEED(10) =       189168972849787

     SERVICE DAMAGE AIRCRAFT NO. 408
          NON-EXPLORATORY DETECTION LEVEL AT  65072 MODIFICATION 6
ICPH =    0.     MCPH =    .074  RCPH =    .001  TIME =  65072
     CORROSION AIRCRAFT NO. 426
```

AIRCRAFT TYPE: HYBRID

NUMBER OF AIRCRAFT IN FLEET: 500 AIRCRAFT SERVICE LIFE: 60000 HOURS

STRUCTURAL ELEMENT: FUS-STR-SID-1100

PREDICTED AVERAGE FATIGUE LIFE: 204240 HOURS ACTUAL AVERAGE FATIGUE LIFE: 232552 HOURS

FATIGUE TEST LIFE: 169578 HOURS

NUMBER AND TIME TO INITIATION OF AIRCRAFT DEFECTS

	FIRST CRACK	CORROSION	SERVICE DAMAGE	PRODUCTION DEFECTS
OCCURRENCES	2	1	1	0
MIN(HRS)	21447	44797	21447	-----
MAX(HRS)	32491	44797	21447	-----
AVG(HRS)	26969	44797	21447	-----

NUMBER AND LENGTH OF CRACKS DETECTED AT EACH LEVEL OF INSPECTION

	A-LEVEL	B-LEVEL	C-LEVEL	D-LEVEL	SPECIAL
OCCURRENCES	0	0	0	1	0
MIN(IN)	0.	0.	0.	1.69	0.
MAX(IN)	0.	0.	0.	1.69	0.
AVG(IN)	0.	0.	0.	1.69	0.

NUMBER AND AREA OF CORROSION DEFECTS DETECTED AT EACH LEVEL OF INSPECTION

	A-LEVEL	B-LEVEL	C-LEVEL	D-LEVEL	SPECIAL
OCCURRENCES	0	0	0	0	0
MIN(SQ.IN)	0.	0.	0.	0.	0.
MAX(SQ.IN)	0.	0.	0.	0.	0.
AVG(SQ.IN)	0.	0.	0.	0.	0.

INSPECTION INTERVALS(HRS)

INITIAL				MOD NO	SAMPLING	TIME
2	50	375	1000	1680	0	30	2280
3	50	375	1125	2400	0	21	4680
4	50	375	1266	3600	0	15	8280
5	50	375	1424	5400	0	11	13680
6	50	375	1602	8100	0	8	21780
7	50	375	1802	12150	0	6	33850
8	50	375	2253	15188	0	7	49038
9	50	375	2816	18984	0	8	71819
10	50	375	3520	23730	0	9	86865
			4399	29663	0	10	

CRACK LENGTHS AND CORRESPONDING CUMULATIVE PROBABILITY OF FAILURE

AIRCRAFT NO. FLT. HOURS CRK.LGT. PROB. OF FAILURE

237	46322	1.69	1.9E-10
488	60000	31.19	2.4E-04

NUMBER OF SPECIAL INSPECTIONS CONDUCTED: 0
NUMBER OF STRUCTURAL MODIFICATIONS: 0
FINAL ACTUAL AVERAGE MODIFIED FATIGUE LIFE: 232552 HOURS
NUMBER OF AIRCRAFT MODIFIED IN SERVICE: 0
ESTIMATED ELEMENT FAILURE RATE: 7.90E-12/HR.

STRUCTURAL FAILURES

AIRCRAFT NO.	FLT. HOURS

RESIDUAL STRENGTH EQUALS FAIL-SAFE STRENGTH

AIRCRAFT NO.	FLT. HOURS
488	58255

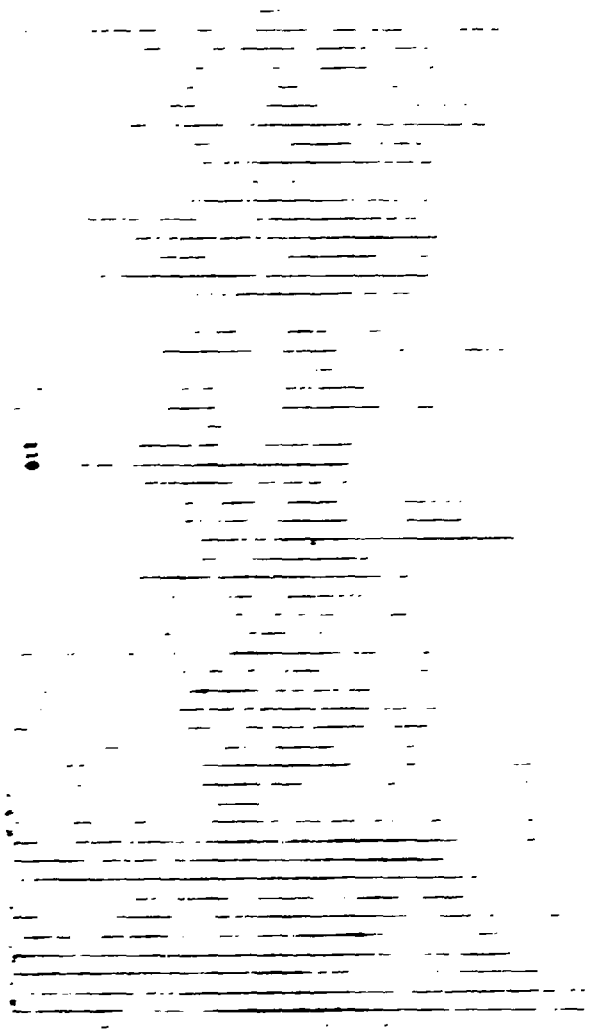

TABLE 10. DEMONSTRATION RESULTS FOR FUSELAGE - STRINGER, TOP

	Defects Per Million Flight Hours	
	SAIFE	MRR/SDR
Crack Detected		
Preflight	0.00	0.00
Service	0.00	0.20
Phase	1.53	0.33
Overhaul	5.70	2.78
Special	2.07	3.38
Total	9.30	6.69
Corrosion Detected		
Preflight	0.00	0.00
Service	0.00	0.00
Phase	0.53	0.00
Overhaul	0.83	0.00
Special	0.03	0.00
Total	1.39	0.00
Fail-Safe Damage	0.00	0.00
Failures	0.00	----
Service Damage	0.20	0.06
Production Defects	0.07	0.33

AIRCRAFT TYPE: HYBRID

NUMBER OF AIRCRAFT IN FLEET: 500 AIRCRAFT SERVICE LIFE: 60000 HOURS

SUMMARY OF STRUCTURAL ELEMENT: FUS-STR-TOP

NUMBER AND TIME TO INITIATION OF AIRCRAFT DEFECTS

	FIRST CRACK	CORROSION	SERVICE DAMAGE	PRODUCTION DEFECTS
OCCURRENCES	857	56	20	5
MIN(HRS)	76	3106	76	
MAX(HRS)	59988	59929	54469	
AVG(HRS)	45546	30460	31511	

NUMBER AND LENGTH OF CRACKS DETECTED AT EACH LEVEL OF INSPECTION

	A-LEVEL	B-LEVEL	C-LEVEL	D-LEVEL	SPECIAL
OCCURRENCES	0	0	46	171	62
MIN(IN)	0.	0.	.32	.28	.18
MAX(IN)	0.	0.	4.53	4.73	5.75
AVG(IN)	0.	0.	1.36	1.28	1.65

NUMBER AND AREA OF CORROSION DEFECTS DETECTED AT EACH LEVEL OF INSPECTION

	A-LEVEL	B-LEVEL	C-LEVEL	D-LEVEL	SPECIAL
OCCURRENCES	0	0	16	25	1
MIN(SQ.IN)	0.	0.	2.45	1.23	40.25
MAX(SQ.IN)	0.	0.	28.83	46.13	40.25
AVG(SQ.IN)	0.	0.	13.17	12.89	40.25
INSPECTION INTERVALS(HRS)					
INITIAL	50	375	1000	3280	
SHORTEST	50	375	1000	1600	
LONGEST	50	375	4399	31641	

NUMBER OF SPECIAL INSPECTIONS CONDUCTED: 16
NUMBER OF STRUCTURAL MODIFICATIONS: 15
NUMBER OF AIRCRAFT MODIFIED IN SERVICE: 638
ESTIMATED ELEMENT TYPE FAILURE RATE USING AVG: 2.45E-16/HR
ESTIMATED ELEMENT TYPE FAILURE RATE: 2.45E-16/HR.
SAMPLE CRK. LGT. MEAN(IN) 1.06 SAMPLE STD. DEV. 1.036
CRK. LGT. VS PROBABILITY CURVE FIT CONST: A = -13.613661502544 B = .628638633375

STRUCTURAL FAILURES

AIRCRAFT NO.	FLT. HOURS	STA. NO.

RESIDUAL STRENGTH EQUALS FAIL-SAFE STRENGTH

AIRCRAFT NO.	FLT. HOURS	STA. NO.

AVERAGE FLIGHT CRACKS	1.695	1.605	.818	.818	.649
AVERAGE PRESSURE CRACKS	.413	.413	.294	.294	.293

TABLE 11. DEMONSTRATION RESULTS FOR WING - ACCESS FRAME

	Defects Per Million Flight Hours	
	SAIFE	MRR/SDR
Crack Detected		
Preflight	2.33	0.04
Service	1.93	0.49
Phase	0.53	0.40
Overhaul	2.87	0.81
Special	1.00	0.77
Total	8.66	2.51
Corrosion Detected		
Preflight	3.13	0.00
Service	2.27	0.00
Phase	0.73	0.00
Overhaul	2.53	0.00
Special	0.53	0.00
Total	9.19	0.00
Fail-Safe Damage	0.00	0.18
Failures	0.00	----
Service Damage	0.07	0.00
Production Defects	0.00	0.00

AIRCRAFT TYPE: HYBRID

NUMBER OF AIRCRAFT IN FLEET: 500 AIRCRAFT SERVICE LIFE: 60000 HOURS

SUMMARY OF STRUCTURAL ELEMENT: WING-ACC-FWD

NUMBER AND TIME TO INITIATION OF AIRCRAFT DEFECTS

	FIRST CRACK	CORROSION	SERVICE DAMAGE	PRODUCTION DEFECTS
OCCURRENCES	376	205	4	0
MIN(HRS)	5949	287	11286	----
MAX(HRS)	59941	59921	55816	----
AVG(HRS)	43827	30858	29994	----

NUMBER AND LENGTH OF CRACKS DETECTED AT EACH LEVEL OF INSPECTION

	A-LEVEL	B-LEVEL	C-LEVEL	D-LEVEL	SPECIAL
OCCURRENCES	35	29	8	43	15
MIN(IN)	.64	.51	.61	.25	.31
MAX(IN)	5.05	2.94	1.84	2.10	2.91
AVG(IN)	1.49	1.21	1.05	.97	1.57

NUMBER AND AREA OF CORROSION DEFECTS DETECTED AT EACH LEVEL OF INSPECTION

	A-LEVEL	B-LEVEL	C-LEVEL	D-LEVEL	SPECIAL
OCCURRENCES	47	34	11	38	8
MIN(SQ.IN)	1.13	1.09	1.25	.60	8.25
MAX(SQ.IN)	21.47	22.63	16.24	56.31	63.15
AVG(SQ.IN)	6.30	5.79	5.70	13.45	25.57
INSPECTION INTERVALS(HRS)					
INITIAL	50	375	1080	1680	
SHORTEST	50	375	1080	1680	
LONGEST	50	375	4399	29663	

NUMBER OF SPECIAL INSPECTIONS CONDUCTED: 6
NUMBER OF STRUCTURAL MODIFICATIONS: 8
NUMBER OF AIRCRAFT MODIFIED IN SERVICE: 457
ESTIMATED ELEMENT TYPE FAILURE RATE USING AVG: 3.9ME-12/HR
ESTIMATED ELEMENT TYPE FAILURE RATE: 4.34E-12/HR.
SAMPLE CRK. LGT. MEAN(IN) .94 SAMPLE STD. DEV. .809
CRK. LGT. VS PROBABILITY CURVE FIT CONST: A = -7.45748721842 2 M = .715125308287

STRUCTURAL FAILURES

AIRCRAFT NO.	FLT. HOURS	STA. NO.

RESIDUAL STRENGTH EQUALS FAIL-SAFE STRENGTH

AIRCRAFT NO.	FLT. HOURS	STA. NO.

AVERAGE FLIGHT CRACKS	1.605	1.605	.818	.818	.549
AVERAGE PRESSURE CRACKS	.561	.561	.471	.471	.448

TABLE 12. DEMONSTRATION RESULTS FOR WING - SPAR, AFT
(WNG-SPR-AFT & WNG-SPS-AFT)

	Defects Per Million Flight Hours	
	SAIFE (*)	MRR/SDR
Crack Detected		
Preflight	0.40 (0.00)	0.11
Service	0.47 (0.00)	1.62
Phase	1.13 (0.20)	0.72
Overhaul	3.34 (1.27)	1.89
Special	0.40 (0.20)	4.42
Total	5.74 (1.67)	8.76
Corrosion Detected		
Preflight	0.20 (0.00)	0.35
Service	0.07 (0.00)	0.00
Phase	0.07 (0.00)	0.00
Overhaul	0.20 (0.00)	0.00
Special	0.07 (0.00)	0.00
Total	0.61 (0.00)	0.35
Fail-Safe Damage	0.00 (0.00)	0.04
Failures	0.00 (0.00)	----
Service Damage	0.00 (0.00)	0.00
Production Defects	0.03 (0.00)	0.04

(*) WNG-SPS-AFT only

AIRCRAFT TYPE: [illegible]

NUMBER OF AIRCRAFT IN FLEET: [illegible] AIRCRAFT SERVICE LIFE: [illegible] HOURS

SUMMARY OF STRUCTURAL ELEMENT: [illegible]

NUMBER AND TIME TO INITIATION OF AIRCRAFT DEFECTS

	FIRST CRACK	CORROSION	SERVICE DAMAGE	PRODUCTION DEFECTS
OCCURRENCES	[illegible]	32	[illegible]	1
MIN(HRS)	[illegible]	[illegible]	[illegible]	------
MAX(HRS)	[illegible]	[illegible]	[illegible]	------
AVG(HRS)	[illegible]	[illegible]	[illegible]	------

NUMBER AND LENGTH OF CRACKS DETECTED AT EACH LEVEL OF INSPECTION

	A-LEVEL	B-LEVEL	C-LEVEL	D-LEVEL	SPECIAL
OCCURRENCES	[illegible]	[illegible]	14	31	3
MIN(IN)	[illegible]	[illegible]	.29	.27	1.82
MAX(IN)	2.67	[illegible]	2.28	2.82	2.78
AVG(IN)	1.29	1.21	.64	[illegible]	2.22

NUMBER AND AREA OF CORROSION DEFECTS DETECTED AT EACH LEVEL OF INSPECTION

	A-LEVEL	B-LEVEL	C-LEVEL	D-LEVEL	SPECIAL
OCCURRENCES	[illegible]	1	1	3	1
MIN(SQ.IN)	[illegible]	[illegible]	7.69	1.42	[illegible]
MAX(SQ.IN)	11.[illegible]	2.97	7.69	4.21	[illegible]
AVG(SQ.IN)	7.7[illegible]	[illegible]	7.69	2.61	41.5[illegible]

INSPECTION INTERVALS(HRS)				
INITIAL	58	375	[illegible]	1688
SHORTEST	58	375	[illegible]	1688
LONGEST	[illegible]	375	43[illegible]	31641

NUMBER OF SPECIAL INSPECTIONS CONDUCTED: [illegible]
NUMBER OF STRUCTURAL MODIFICATIONS: 7
NUMBER OF AIRCRAFT MODIFIED IN SERVICE: [illegible]
ESTIMATED ELEMENT TYPE FAILURE RATE USING AVG: [illegible]E-13/[illegible]
ESTIMATED ELEMENT TYPE FAILURE RATE: 1.[illegible]E-12/[illegible]
SAMPLE CRK. LGT. MEAN(IN) [illegible] SAMPLE STD. DEV. [illegible]
CRK. LET. VS PROBABILITY CURVE FIT COEFS: A = -7.[illegible] B = .[illegible]

STRUCTURAL FAILURES			RESIDUAL STRENGTH EQUALS FAIL-SAFE STRENGTH		
AIRCRAFT NO.	FLT. HOURS	STA. NO.	AIRCRAFT NO.	FLT. HOURS	STA. NO.

AVERAGE FLIGHT CRACKS 1.[illegible] 1.[illegible] .[illegible] .[illegible] .[illegible]
AVERAGE PRESSURE CRACKS .56[illegible] .56[illegible] .47[illegible] .47[illegible] .[illegible]

AIRCRAFT TYPE: HYBRID

NUMBER OF AIRCRAFT IN FLEET: 500 AIRCRAFT SERVICE LIFE: 60000 HOURS

SUMMARY OF STRUCTURAL ELEMENT: WNG-SPS-AFT

NUMBER AND TIME TO INITIATION OF AIRCRAFT DEFECTS

	FIRST CRACK	CORROSION	SERVICE DAMAGE	PRODUCTION DEFECTS
OCCURRENCES	39	0	0	0
MIN(HRS)	15567	0	0	-----
MAX(HRS)	59302	0	0	-----
AVG(HRS)	44519	0	0	-----

NUMBER AND LENGTH OF CRACKS DETECTED AT EACH LEVEL OF INSPECTION

	A-LEVEL	B-LEVEL	C-LEVEL	D-LEVEL	SPECIAL
OCCURRENCES	0	0	3	19	3
MIN(IN)	0.	0.	1.65	.54	.65
MAX(IN)	0.	0.	4.84	2.93	2.52
AVG(IN)	0.	0.	3.01	1.46	1.32

NUMBER AND AREA OF CORROSION DEFECTS DETECTED AT EACH LEVEL OF INSPECTION

	A-LEVEL	B-LEVEL	C-LEVEL	D-LEVEL	SPECIAL
OCCURRENCES	0	0	0	0	0
MIN(SQ.IN)	0.	0.	0.	0.	0.
MAX(SQ.IN)	0.	0.	0.	0.	0.
AVG(SQ.IN)	0.	0.	0.	0.	0.

INSPECTION INTERVALS(HRS)				
INITIAL	50	375	1000	1600
SHORTEST	50	375	1000	1600
LONGEST	50	375	3520	23730

NUMBER OF SPECIAL INSPECTIONS CONDUCTED: 2
NUMBER OF STRUCTURAL MODIFICATIONS: 1
NUMBER OF AIRCRAFT MODIFIED IN SERVICE: 0
ESTIMATED ELEMENT TYPE FAILURE RATE USING AVG: 1.43E-13/HR
ESTIMATED ELEMENT TYPE FAILURE RATE: 5.05E-13/HR
SAMPLE CRK. LGT. MEAN(IN) 1.58 SAMPLE STD. DEV. .997
CRK. LGT. VS PROBABILITY CURVE FIT CONST: A = -7.537710713338 B = .468448282394

STRUCTURAL FAILURES			RESIDUAL STRENGTH EQUALS FAIL-SAFE STRENGTH		
AIRCRAFT NO.	FLT. HOURS	STA. NO.	AIRCRAFT NO.	FLT. HOURS	STA. NO.

AVERAGE FLIGHT CRACKS	1.605	1.605	.816	.816	.544
AVERAGE PRESSURE CRACKS	.561	.561	.471	.471	.448

TABLE 13. DEMONSTRATION RESULTS FOR WING - SPAR, CENTER

	Defects Per Million Flight Hours	
	SAIFE	MRR/SDR
Crack Detected		
Preflight	4.47	0.00
Service	3.60	0.00
Phase	2.40	0.00
Overhaul	16.60	0.20
Special	6.47	0.00
Total	33.54	0.20
Corrosion Detected		
Preflight	0.33	0.00
Service	0.00	0.00
Phase	0.07	0.00
Overhaul	0.27	0.00
Special	0.20	0.00
Total	0.87	0.00
Fail-Safe Damage	0.0	0.02
Failures	0.00	----
Service Damage	0.00	0.00
Production Defects	0.00	0.00

AIRCRAFT TYPE: HYBRID

NUMBER OF AIRCRAFT IN FLEET: 500 AIRCRAFT SERVICE LIFE: 60000 HOURS

SUMMARY OF STRUCTURAL ELEMENT: WNG-SPR-CEN

NUMBER AND TIME TO INITIATION OF AIRCRAFT DEFECTS

	FIRST CRACK	CORROSION	SERVICE DAMAGE	PRODUCTION DEFECTS
OCCURRENCES	1703	28	1	1
MIN(HRS)	3061	2375	45885	-----
MAX(HRS)	59963	56382	45885	-----
AVG(HRS)	44358	27750	45885	-----

NUMBER AND LENGTH OF CRACKS DETECTED AT EACH LEVEL OF INSPECTION

	A-LEVEL	B-LEVEL	C-LEVEL	D-LEVEL	SPECIAL
OCCURRENCES	67	54	36	249	97
MIN(IN)	.58	.46	.46	.16	.21
MAX(IN)	2.05	2.15	1.82	2.43	2.72
AVG(IN)	1.06	.92	.91	.81	.97

NUMBER AND AREA OF CORROSION DEFECTS DETECTED AT EACH LEVEL OF INSPECTION

	A-LEVEL	B-LEVEL	C-LEVEL	D-LEVEL	SPECIAL
OCCURRENCES	5	0	1	4	3
MIN(SQ.IN)	1.09	0.	2.81	7.34	5.07
MAX(SQ.IN)	6.92	0.	2.81	44.16	31.21
AVG(SQ.IN)	3.74	0.	2.81	17.90	14.23
INSPECTION INTERVALS(HRS)					
INITIAL	50	375	1000	3200	
SHORTEST	50	375	1000	1600	
LONGEST	50	375	6667	32000	

NUMBER OF SPECIAL INSPECTIONS CONDUCTED: 13
NUMBER OF STRUCTURAL MODIFICATIONS: 16
NUMBER OF AIRCRAFT MODIFIED IN SERVICE: 1156
ESTIMATED ELEMENT TYPE FAILURE RATE USING AVG: 1.03E-11/HR
ESTIMATED ELEMENT TYPE FAILURE RATE: 6.13E-11/HR.
SAMPLE CRK. LGT. MEAN(IN) .73 SAMPLE STD. DEV. .[illegible]
CRK. LGT. VS PROBABILITY CURVE FIT CONST: A = -7.6U5411246000 B = .772555984015

STRUCTURAL FAILURES			RESIDUAL STRENGTH EQUALS FAIL-SAFE STRENGTH		
AIRCRAFT NO.	FLT. HOURS	STA. NO.	AIRCRAFT NO.	FLT. HOURS	STA. NO.

AVERAGE FLIGHT CRACKS	1.605	1.605	.618	.618	.649
AVERAGE PRESSURE CRACKS	.561	.561	.471	.471	.448

TABLE 14. DEMONSTRATION RESULTS FOR WING - SPAR, FOWARD

	Defects Per Million Flight Hours	
	SAIFE	MRR/SDR
Crack Detected		
Preflight	0.00	0.04
Service	0.00	0.49
Phase	0.00	0.40
Overhaul	0.00	0.81
Special	0.00	0.77
Total	0.00	2.51
Corrosion Detected		
Preflight	0.20	0.00
Service	0.07	0.00
Phase	0.13	0.00
Overhaul	0.73	0.00
Special	0.00	0.00
Total	1.13	0.00
Fail-Safe Damage	0.00	0.18
Failures	0.00	----
Service Damage	0.00	0.00
Production Defects	0.00	0.00

AIRCRAFT TYPE: HYBRID

NUMBER OF AIRCRAFT IN FLEET: 500 AIRCRAFT SERVICE LIFE: 60000 HOURS

SUMMARY OF STRUCTURAL ELEMENT: ENG-SPR-FWD

NUMBER AND TIME TO INITIATION OF AIRCRAFT DEFECTS

	FIRST CRACK	CORROSION	SERVICE DAMAGE	PRODUCTION DEFECTS
OCCURRENCES	[illegible]	30	0	0
MIN(HRS)	31272	1039	0	------
MAX(HRS)	52704	59337	0	------
AVG(HRS)	43254	27049	0	------

NUMBER AND LENGTH OF CRACKS DETECTED AT EACH LEVEL OF INSPECTION

	A-LEVEL	B-LEVEL	C-LEVEL	D-LEVEL	SPECIAL
OCCURRENCES	0	0	0	0	0
MIN(IN)	0.	0.	0.	0.	0.
MAX(IN)	0.	0.	0.	0.	0.
AVG(IN)	0.	0.	0.	0.	0.

NUMBER AND SIZE OF CORROSION DEFECTS DETECTED AT EACH LEVEL OF INSPECTION

	A-LEVEL	B-LEVEL	C-LEVEL	D-LEVEL	SPECIAL
OCCURRENCES	3	1	2	11	
MIN(SQ.IN)	4.52	14.[illegible]	2.14	.73	0.
MAX(SQ.IN)	14.65	14.[illegible]	5.97	47.23	0.
AVG(SQ.IN)	8.55	14.65	4.02	25.85	0.

INSPECTION INTERVALS(HRS)				
INITIAL	50	375	1000	1600
SHORTEST	50	375	1000	1600
LONGEST	50	375	6567	32000

NUMBER OF SPECIAL INSPECTIONS CONDUCTED: 0
NUMBER OF STRUCTURAL MODIFICATIONS: 0
NUMBER OF AIRCRAFT MODIFIED IN SERVICE: 0
ESTIMATED ELEMENT TYPE FAILURE RATE (PER A/C AVG): 1.49E-14/HR
ESTIMATED ELEMENT TYPE FAILURE RATE: 1.61E-14/HR.
SAMPLE CRK. LGT. MEAN(IN) .50 SAMPLE STD. DEV. .237
CRK. LGT. VS PROBABILITY CURVE FIT CONST: A = -5.325115R54256 B = 1.03[illegible]

STRUCTURAL FAILURES			RESIDUAL STRENGTH EQUAL FAIL-SAFE STRENGTH		
AIRCRAFT NO.	FLT. HOURS	STA. NO.	AIRCRAFT NO.	FLT. HOURS	STA. NO.

AVERAGE FLIGHT CRACKS	1.405	1.405	.[illegible]	.[illegible]	.569
AVERAGE PRESSURE CRACKS	.561	.561	.471	.471	.468

TABLE 15. DEMONSTRATION RESULTS FOR WING - STRINGER, AFT
(WNG-STR-AFT & WNG-STS-AFT)

	Defects Per Million Flight Hours	
	SAIFE (*)	MRR/SDR
Crack Detected		
Preflight	5.27 (1.27)	0.20
Service	6.20 (0.60)	0.77
Phase	2.87 (0.07)	0.20
Overhaul	22.20 (2.27)	0.85
Special	2.80 (0.33)	1.37
Total	29.34 (4.54)	3.39
Corrosion Detected		
Preflight	0.47 (0.00)	0.02
Service	0.94 (0.07)	0.02
Phase	0.73 (0.00)	0.02
Overhaul	0.87 (0.07)	0.02
Special	0.20 (0.00)	0.02
Total	3.07 (0.14)	0.10
Fail-Safe Damage	0.00 (0.00)	0.04
Failures	0.00 (0.00)	----
Service Damage	0.20 (0.00)	0.00
Production Defects	0.00 (0.00)	0.04

(*) WNG-STS-AFT only

AIRCRAFT TYPE: HYBRID

NUMBER OF AIRCRAFT IN FLEET: 500 AIRCRAFT SERVICE LIFE: 60000 HOURS

SUMMARY OF STRUCTURAL ELEMENT: WNG-STR-LSA

NUMBER AND TIME TO INITIATION OF AIRCRAFT DEFECTS

	FIRST CRACK	CORROSION	SERVICE DAMAGE	PRODUCTION DEFECTS
OCCURRENCES	1087	29	3	0
MIN(HRS)	3883	45	3883	-----
MAX(HRS)	59999	59545	31541	-----
AVG(HRS)	45722	32515	14154	-----

NUMBER AND LENGTH OF CRACKS DETECTED AT EACH LEVEL OF INSPECTION

	A-LEVEL	B-LEVEL	C-LEVEL	D-LEVEL	SPECIAL
OCCURRENCES	66	49	27	211	20
MIN(IN)	.54	.64	.24	.15	.18
MAX(IN)	2.06	1.49	1.44	2.43	1.76
AVG(IN)	1.05	.95	.74	.77	.79

NUMBER AND AREA OF CORROSION DEFECTS DETECTED AT EACH LEVEL OF INSPECTION

	A-LEVEL	B-LEVEL	C-LEVEL	D-LEVEL	SPECIAL
OCCURRENCES	7	5	2	3	2
MIN(SQ.IN)	2.65	2.42	6.62	.05	29.25
MAX(SQ.IN)	18.46	6.19	7.53	22.71	53.22
AVG(SQ.IN)	7.38	6.25	7.07	9.18	41.24

INSPECTION INTERVALS(HRS)				
INITIAL	50	375	1000	1600
SHORTEST	50	375	1000	1600
LONGEST	50	375	4394	29663

NUMBER OF SPECIAL INSPECTIONS CONDUCTED: 14
NUMBER OF STRUCTURAL MODIFICATIONS: 17
NUMBER OF AIRCRAFT MODIFIED IN SERVICE: 371
ESTIMATED ELEMENT TYPE FAILURE RATE USING AVG: 1.19E-11/HR
ESTIMATED ELEMENT TYPE FAILURE RATE: 3.13E-11/HR
SAMPLE CRK. LGT. MEAN(IN) .67 SAMPLE STD. DEV. .493
CRK. LGT. VS PROBABILITY CURVE FIT CONST: A = -7.655520181157 B = .467=19827682

STRUCTURAL FAILURES AIRCRAFT NO.	FLT. HOURS	STA. NO.

RESIDUAL STRENGTH EQUALS FAIL-SAFE STRENGTH AIRCRAFT NO.	FLT. HOURS	STA. NO.

AVERAGE FLIGHT CRACKS	1.595	1.606	.818	.818	.786
AVERAGE PRESSURE CRACKS	.561	.561	.471	.471	.643

AIRCRAFT TYPE: HYBRID

NUMBER OF AIRCRAFT IN FLEET: [illegible] AIRCRAFT SERVICE LIFE: 50000 HOURS

SUMMARY OF STRUCTURAL ELEMENT: WNG-STS-LSA

NUMBER AND TIME TO INITIATION OF AIRCRAFT DEFECTS

	FIRST CRACK	CORROSION	SERVICE DAMAGE	PRODUCTION DEFECTS
OCCURRENCES	155	2	1	0
MIN(HRS)	4020	1647[illegible]	38088	-----
MAX(HRS)	59659	18332	38088	-----
AVG(HRS)	44827	17403	38088	-----

NUMBER AND LENGTH OF CRACKS DETECTED AT EACH LEVEL OF INSPECTION

	A-LEVEL	B-LEVEL	C-LEVEL	D-LEVEL	SPECIAL
OCCURRENCES	19	4	1	34	5
MIN(IN)	.41	.47	.63	.22	.24
MAX(IN)	1.47	1.25	.63	1.47	1.23
AVG(IN)	.97	.93	.63	.62	.67

NUMBER AND AREA OF CORROSION DEFECTS DETECTED AT EACH LEVEL OF INSPECTION

	A-LEVEL	B-LEVEL	C-LEVEL	D-LEVEL	SPECIAL
OCCURRENCES	[illegible]	1	0	1	0
MIN(SQ.IN)	0.	1.[illegible]	0.	7.55	0.
MAX(SQ.IN)	0.	1.[illegible]	0.	7.55	0.
AVG(SQ.IN)	0.	1.[illegible]	0.	7.55	0.
INSPECTION INTERVALS(HRS)					
INITIAL	50	75	1600	1600	
SHORTEST	50	75	1600	1600	
LONGEST	50	75	2761	31641	

NUMBER OF SPECIAL INSPECTIONS CONDUCTED: 1
NUMBER OF STRUCTURAL MODIFICATIONS: [illegible]
NUMBER OF AIRCRAFT MODIFIED IN SERVICE: 392
ESTIMATED ELEMENT TYPE FAILURE RATE USING AVG: 1.[illegible]-12/HR
ESTIMATED ELEMENT TYPE FAILURE RATE: 2.99E-12/HR.
SAMPLE CRK. LGT. MEAN(IN) .[illegible] SAMPLE STD. DEV. .[illegible]77
CRK. LGT. VS PROBABILITY CURVE FIT CONST: A = -7.[illegible] B = .[illegible]5587431602[illegible]

STRUCTURAL FAILURES		
AIRCRAFT NO.	FLT. HOURS	STA. NO.

RESIDUAL STRENGTH EQUALS FAIL-SAFE STRENGTH		
AIRCRAFT NO.	FLT. HOURS	STA. NO.

AVERAGE FLIGHT CRACKS 1.605 1.605 .818 .818 .[illegible]
AVERAGE PRESSURE CRACKS .561 .561 .471 .471 .448

AIRCRAFT TYPE: HYBRID

NUMBER OF AIRCRAFT IN FLEET: 500 AIRCRAFT SERVICE LIFE: 40000 HOURS

SUMMARY OF STRUCTURAL ELEMENT: WNG-STR-USA

NUMBER AND TIME TO INITIATION OF AIRCRAFT DEFECTS

	FIRST CRACK	CORROSION	SERVICE DAMAGE	PRODUCTION DEFECTS
OCCURRENCES	249	39	2	0
MIN(HRS)	13287	1185	21679	-----
MAX(HRS)	59963	57969	49005	-----
AVG(HRS)	45346	26796	35342	-----

NUMBER AND LENGTH OF CRACKS DETECTED AT EACH LEVEL OF INSPECTION

	A-LEVEL	B-LEVEL	C-LEVEL	D-LEVEL	SPECIAL
OCCURRENCES	0	35	15	8A	17
MIN(IN)	0.	.93	1.85	.7a	.44
MAX(IN)	0.	6.25	7.27	6.14	5.76
AVG(IN)	0.	3.09	3.23	1.79	3.37

NUMBER AND AREA OF CORROSION DEFECTS DETECTED AT EACH LEVEL OF INSPECTION

	A-LEVEL	B-LEVEL	C-LEVEL	D-LEVEL	SPECIAL
OCCURRENCES	0	6	9	9	1
MIN(SQ.IN)	0.	2.23	5.62	2.12	21.44
MAX(SQ.IN)	0.	20.99	22.60	74.88	21.44
AVG(SQ.IN)	0.	8.59	10.53	13.92	21.44

INSPECTION INTERVALS(HRS)

INITIAL	58	375	1000	4400
SHORTEST	58	375	1000	772
LONGEST	58	375	5000	32000

NUMBER OF SPECIAL INSPECTIONS CONDUCTED: 2
NUMBER OF STRUCTURAL MODIFICATIONS: 7
NUMBER OF AIRCRAFT MODIFIED IN SERVICE: 44
ESTIMATED ELEMENT TYPE FAILURE RATE USING AVG: 0.00E+00/HR
ESTIMATED ELEMENT TYPE FAILURE RATE: 0.00E+00/HR.
SAMPLE CRK. LGT. MEAN(IN) 2.00 SAMPLE STD. DEV. 1.478
CRK. LGT. VS PROBABILITY CURVE FIT CONST: A = -13.675925818191 B = .41548120472

STRUCTURAL FAILURES			RESIDUAL STRENGTH EQUALS FAIL-SAFE STRENGTH		
AIRCRAFT NO.	FLT. HOURS	STA. NO.	AIRCRAFT NO.	FLT. HOURS	STA. NO.
-----	-----	-----	-----	-----	-----

AVERAGE FLIGHT CRACKS	1.605	1.605	.418	.418	.449
AVERAGE PRESSURE CRACKS	.561	.561	.471	.471	.448

TABLE 16. DEMONSTRATION RESULTS FOR WING - STRINGER, CENTER

	Defects Per Million Flight Hours	
	SAIFE	MRR/SDR
Crack Detected		
Preflight	3.67	0.15
Service	4.20	0.22
Phase	2.33	0.64
Overhaul	11.80	1.05
Special	2.07	1.40
Total	24.07	3.55
Corrosion Detected		
Preflight	0.60	0.00
Service	2.07	0.15
Phase	0.40	0.04
Overhaul	0.93	0.00
Special	0.27	0.33
Total	4.27	0.52
Fail-Safe Damage	0.00	0.28
Failures	0.00	----
Service Damage	0.13	0.00
Production Defects	0.00	0.00

AIRCRAFT TYPE: HYBRID

NUMBER OF AIRCRAFT IN FLEET: 500 AIRCRAFT SERVICE LIFE: 60000 HOURS

SUMMARY OF STRUCTURAL ELEMENT: WG-STA-LSC

NUMBER AND TIME TO INITIATION OF AIRCRAFT DEFECTS

	FIRST CRACK	CORROSION	SERVICE DAMAGE	PRODUCTION DEFECTS
OCCURRENCES	905	33	3	3
MIN(HRS)	481	4478	481	
MAX(HRS)	59997	59745	18226	
AVG(HRS)	46792	27835	12263	

NUMBER AND LENGTH OF CRACKS DETECTED AT EACH LEVEL OF INSPECTION

	A-LEVEL	B-LEVEL	C-LEVEL	D-LEVEL	SPECIAL
OCCURRENCES	55	37	26	116	14
MIN(IN)	.57	.44	.35	.19	.21
MAX(IN)	2.26	1.58	1.70	2.14	1.54
AVG(IN)	1.09	.91	.87	.77	.81

NUMBER AND AREA OF CORROSION DEFECTS DETECTED AT EACH LEVEL OF INSPECTION

	A-LEVEL	B-LEVEL	C-LEVEL	D-LEVEL	SPECIAL
OCCURRENCES	9	5	3	7	0
MIN(SQ.IN)	1.71	2.87	1.03	1.27	0.
MAX(SQ.IN)	11.78	6.12	6.78	41.26	0.
AVG(SQ.IN)	5.43	4.71	3.71	17.81	0.
INSPECTION INTERVALS(HRS)					
INITIAL	50	375	1000	1600	
SHORTEST	50	375	1000	1600	
LONGEST	50	375	6667	32000	

NUMBER OF SPECIAL INSPECTIONS CONDUCTED: -
NUMBER OF STRUCTURAL MODIFICATIONS: 14
NUMBER OF AIRCRAFT MODIFIED IN SERVICE: 14
ESTIMATED ELEMENT TYPE FAILURE RATE USING AVG: [illegible]
ESTIMATED ELEMENT TYPE FAILURE RATE: 2.21E-[illegible]
SAMPLE CRK. LGT. MEAN(IN) .67 SAMPLE STD. DEV. .535
CRK. LGT. VS PROBABILITY CURVE FIT CONST: A = -7.493377107364 B = [illegible]

AIRCRAFT NO.	STRUCTURAL FAILURES FLT. HOURS	STA. NO.

RESIDUAL STRENGTH EQUALS FAIL-SAFE STRENGTH

AIRCRAFT NO.	FLT. HOURS	STA. NO.

AVERAGE FLIGHT CRACKS	1.695	1.695	.818	.818	.443
AVERAGE PRESSURE CRACKS	.561	.561	.471	.471	.448

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                                   RANDOM NUMBER SEEDS
                                   SEED( 1) =        45765951 74243
                                   SEED( 2) =      110279940959396
                                   SEED( 3) =      190941148356720
                                   SEED( 4) =      276002775007697
                                   SEED( 5) =      199358155946290
                                   SEED( 6) =      273378095177687
                                   SEED( 7) =      194472541440882
                                   SEED( 8) =      232042419092626
                                   SEED( 9) =      145925218203920
                                   SEED(10) =        708818648A389

          NON-EXPLORATORY DETECTION LEVEL AT  44319 MODIFICATION 8
ICPH =   0.     MCPH =    .039  RCPH =    .004  TIME =  44319
ICPH =   0.     MCPH =    .039  RCPH =    .008  TIME =  44453
ICPH =   0.     MCPH =    .043  RCPH =    .009  TIME =  48046
ICPH =   0.     MCPH =    .044  RCPH =    .010  TIME =  48750
ICPH =   0.     MCPH =    .045  RCPH =    .013  TIME =  48939
ICPH =   0.     MCPH =    .047  RCPH =    .014  TIME =  50428
ICPH =   0.     MCPH =    .054  RCPH =    .013  TIME =  53653
ICPH =   0.     MCPH =    .055  RCPH =    .015  TIME =  54296
ICPH =   0.     MCPH =    .056  RCPH =    .016  TIME =  54998
ICPH =   0.     MCPH =    .057  RCPH =    .017  TIME =  55249
ICPH =   0.     MCPH =    .062  RCPH =    .017  TIME =  57150
ICPH =   0.     MCPH =    .067  RCPH =    .017  TIME =  58700
ICPH =   0.     MCPH =    .068  RCPH =    .018  TIME =  59092
CRACK FOUND ON A/C NO. 284 AT  36000 HOURS DURING INTERNAL D INSPECTION
ICPH =    .005  MCPH =    .069  RCPH =    .028  TIME =  59450
ICPH =    .001  MCPH =    .070  RCPH =    .028  TIME =  60207
ICPH =    .001  MCPH =    .070  RCPH =    .029  TIME =  60488
CRACK FOUND ON A/C NO. 109 AT  59800 HOURS DURING INTERNAL D INSPECTION
ICPH =    .005  MCPH =    .073  RCPH =    .023  TIME =  65750
CRACK FOUND ON A/C NO. 134 AT  57300 HOURS DURING INTERNAL D INSPECTION
ICPH =    .005  MCPH =    .073  RCPH =    .023  TIME =  65750
CRACK FOUND ON A/C NO. 135 AT  57200 HOURS DURING INTERNAL D INSPECTION
ICPH =    .005  MCPH =    .073  RCPH =    .024  TIME =  65750
CRACK FOUND ON A/C NO. 145 AT  56200 HOURS DURING INTERNAL D INSPECTION
ICPH =    .005  MCPH =    .073  RCPH =    .025  TIME =  65750
CRACK FOUND ON A/C NO. 163 AT  54400 HOURS DURING INTERNAL D INSPECTION
ICPH =    .005  MCPH =    .073  RCPH =    .026  TIME =  65750
CRACK FOUND ON A/C NO. 165 AT  54200 HOURS DURING INTERNAL D INSPECTION
ICPH =    .005  MCPH =    .073  RCPH =    .026  TIME =  65750
CRACK FOUND ON A/C NO. 184 AT  52300 HOURS DURING INTERNAL D INSPECTION
ICPH =    .005  MCPH =    .073  RCPH =    .027  TIME =  65750
CRACK FOUND ON A/C NO. 200 AT  50700 HOURS DURING INTERNAL D INSPECTION
ICPH =    .005  MCPH =    .073  RCPH =    .028  TIME =  65750
CRACK FOUND ON A/C NO. 205 AT  50200 HOURS DURING INTERNAL D INSPECTION
ICPH =    .005  MCPH =    .073  RCPH =    .028  TIME =  65750
CRACK FOUND ON A/C NO. 214 AT  49300 HOURS DURING INTERNAL D INSPECTION
ICPH =    .005  MCPH =    .073  RCPH =    .029  TIME =  65750
CRACK FOUND ON A/C NO. 304 AT  40300 HOURS DURING INTERNAL D INSPECTION
ICPH =    .005  MCPH =    .073  RCPH =    .030  TIME =  65750
CRACK FOUND ON A/C NO. 190 AT  58000 HOURS DURING INTERNAL D INSPECTION
ICPH =    .005  MCPH =    .088  RCPH =    .023  TIME =  72050
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CRACK FOUND ON A/C NO. 191 AT  57900 HOURS DURING INTERNAL D INSPECTION
ICPH =    .005  MCPH =    .088  RCPH =    .024  TIME =  72050
CRACK FOUND ON A/C NO. 385 AT  36500 HOURS DURING INTERNAL D INSPECTION
ICPH =    .005  MCPH =    .088  RCPH =    .024  TIME =  72050
ICPH =    .001  MCPH =    .088  RCPH =    .025  TIME =  72250
ICPH =    .001  MCPH =    .089  RCPH =    .025  TIME =  72425
ICPH =    .001  MCPH =    .093  RCPH =    .025  TIME =  73632
ICPH =    .001  MCPH =    .093  RCPH =    .025  TIME =  73632
ICPH =    .001  MCPH =    .106  RCPH =    .023  TIME =  77171
ICPH =    .001  MCPH =    .108  RCPH =    .023  TIME =  77546
CRACK FOUND ON A/C NO. 244 AT  58980 HOURS DURING INTERNAL D INSPECTION
ICPH =    .005  MCPH =    .111  RCPH =    .023  TIME =  78350
CRACK FOUND ON A/C NO. 264 AT  56900 HOURS DURING INTERNAL D INSPECTION
ICPH =    .005  MCPH =    .111  RCPH =    .023  TIME =  78350
CRACK FOUND ON A/C NO. 349 AT  48400 HOURS DURING INTERNAL D INSPECTION
ICPH =    .005  MCPH =    .111  RCPH =    .024  TIME =  78350
CRACK FOUND ON A/C NO. 369 AT  46403 HOURS DURING INTERNAL D INSPECTION
ICPH =    .005  MCPH =    .111  RCPH =    .024  TIME =  78350
CRACK FOUND ON A/C NO. 441 AT  39200 HOURS DURING INTERNAL D INSPECTION
ICPH =    .005  MCPH =    .111  RCPH =    .025  TIME =  78350
CRACK FOUND ON A/C NO. 461 AT  37200 HOURS DURING INTERNAL D INSPECTION
ICPH =    .005  MCPH =    .111  RCPH =    .025  TIME =  78350
CRACK FOUND ON A/C NO. 484 AT  34900 HOURS DURING INTERNAL D INSPECTION
ICPH =    .005  MCPH =    .111  RCPH =    .025  TIME =  78350
CRACK FOUND ON A/C NO. 309 AT  58700 HOURS DURING INTERNAL D INSPECTION
ICPH =    .005  MCPH =    .152  RCPH =    .021  TIME =  84650
CRACK FOUND ON A/C NO. 315 AT  58100 HOURS DURING INTERNAL D INSPECTION
ICPH =    .005  MCPH =    .152  RCPH =    .021  TIME =  84650
CRACK FOUND ON A/C NO. 365 AT  53100 HOURS DURING INTERNAL D INSPECTION
ICPH =    .005  MCPH =    .152  RCPH =    .022  TIME =  84650
CRACK FOUND ON A/C NO. 395 AT  50400 HOURS DURING INTERNAL D INSPECTION
ICPH =    .005  MCPH =    .152  RCPH =    .022  TIME =  84650
CRACK FOUND ON A/C NO. 467 AT  42900 HOURS DURING INTERNAL D INSPECTION
ICPH =    .005  MCPH =    .152  RCPH =    .022  TIME =  84650
ICPH =    .001  MCPH =    .162  RCPH =    .022  TIME =  85775
ICPH =    .001  MCPH =    .167  RCPH =    .022  TIME =  86292
ICPH =    .001  MCPH =    .171  RCPH =    .022  TIME =  86654
ICPH =    .001  MCPH =    .186  RCPH =    .022  TIME =  87911
ICPH =    .001  MCPH =    .186  RCPH =    .022  TIME =  87914
ICPH =    .001  MCPH =    .209  RCPH =    .022  TIME =  89917
CRACK FOUND ON A/C NO. 378 AT  58900 HOURS DURING INTERNAL D INSPECTION
ICPH =    .005  MCPH =    .239  RCPH =    .021  TIME =  90950
CRACK FOUND ON A/C NO. 393 AT  56600 HOURS DURING INTERNAL D INSPECTION
ICPH =    .005  MCPH =    .239  RCPH =    .022  TIME =  90950
CRACK FOUND ON A/C NO. 418 AT  54100 HOURS DURING INTERNAL D INSPECTION
ICPH =    .005  MCPH =    .239  RCPH =    .022  TIME =  90950
CRACK FOUND ON A/C NO. 437 AT  52200 HOURS DURING INTERNAL D INSPECTION
ICPH =    .005  MCPH =    .239  RCPH =    .022  TIME =  90950
ICPH =    .001  MCPH =    .278  RCPH =    .022  TIME =  92575
ICPH =    .001  MCPH =    .416  RCPH =    .020  TIME =  95696
CRACK FOUND ON A/C NO. 477 AT  54500 HOURS DURING INTERNAL D INSPECTION
ICPH =    .005  MCPH =    .553  RCPH =    .020  TIME =  97250
CRACK FOUND ON A/C NO. 482 AT  54000 HOURS DURING INTERNAL D INSPECTION
ICPH =    .005  MCPH =    .553  RCPH =    .020  TIME =  97250
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AIRCRAFT TYPE: HYBRID

NUMBER OF AIRCRAFT IN FLEET: 500 AIRCRAFT SERVICE LIFE: 60000 HOURS

STRUCTURAL ELEMENT: WNG-STR-LSC-0543

PREDICTED AVERAGE FATIGUE LIFE: 193200 HOURS ACTUAL AVERAGE FATIGUE LIFE: 66752 HOURS
FATIGUE TEST LIFE:9999999 HOURS

NUMBER AND TIME TO INITIATION OF AIRCRAFT DEFECTS

	FIRST CRACK	CORROSION	SERVICE DAMAGE	PRODUCTION DEFECTS
OCCURRENCES	198	0	0	0
MIN(HRS)	16636	0	0	------
MAX(HRS)	59716	0	0	------
AVG(HRS)	45316	0	0	------

NUMBER AND LENGTH OF CRACKS DETECTED AT EACH LEVEL OF INSPECTION

	A-LEVEL	B-LEVEL	C-LEVEL	D-LEVEL	SPECIAL
OCCURRENCES	7	18	10	35	7
MIN(IN)	.79	.55	.55	.24	.39
MAX(IN)	1.19	1.65	1.33	1.62	1.54
AVG(IN)	.98	1.05	.86	.65	.85

NUMBER AND AREA OF CORROSION DEFECTS DETECTED AT EACH LEVEL OF INSPECTION

	A-LEVEL	B-LEVEL	C-LEVEL	D-LEVEL	SPECIAL
OCCURRENCES	0	0	0	0	0
MIN(SQ.IN)	0.	0.	0.	0.	0.
MAX(SQ.IN)	0.	0.	0.	0.	0.
AVG(SQ.IN)	0.	0.	0.	0.	0.

INSPECTION INTERVALS(HRS)				MOD NO	SAMPLING	TIME
INITIAL	50	375	1000	6400	0	0	
2	50	375	1125	9600	0	4	7000
3	50	375	1265	14400	0	5	16600
4	50	375	1582	19800	0	6	31000
5	50	375	1562	6300	0	1	59450

CRACK LENGTHS AND CORRESPONDING CUMULATIVE PROBABILITY OF FAILURE

AIRCRAFT NO.	FLT. HOURS	CRK.LGT.	PROB. OF FAILURE
113	37969	.66	1.3E-07
74	40603	.97	2.5E-07
24	46746	1.17	3.6E-07
5	49400	.27	3.1E-08
64	45639	1.04	1.9E-07

40	48328	.83	1.9E-07
86	49453	1.24	2.8E-07
6	53896	1.13	2.5E-07
256	34348	.85	1.3E-07
16	54349	.87	7.2E-07
261	36000	.51	8.8E-08
269	36750	.55	9.4E-08
115	52542	1.33	2.5E-07
284	34000	.26	6.6E-08
31	57800	1.01	2.6E-07
53	56700	.62	6.6E-08
91	54800	.76	1.5E-07
96	54550	.68	1.5E-07
154	49000	1.54	4.2E-07
181	46300	1.02	2.2E-07
211	43300	.55	1.0E-07
128	52357	.91	2.1E-07
3	60000	1.02	2.2E-07
4	60000	.59	1.1E-07
7	60000	1.47	3.8E-07
68	56988	1.58	4.7E-07
8	60000	.28	5.3E-08
12	60000	1.07	2.1E-07
13	60000	.01	2.2E-09
15	60000	.27	4.7E-08
18	60000	.36	5.4E-08
26	60000	1.09	2.9E-07
30	60000	.51	9.2E-08
36	60000	.78	1.3E-07
41	60000	.05	9.2E-09
42	60000	.43	1.0E-07
45	60000	.95	2.0E-07
49	60000	.50	1.0E-07
55	60000	.55	1.1E-07
57	60000	.65	1.3E-07
58	60000	.05	7.2E-08
61	60000	.16	2.5E-08
62	60000	.44	5.8E-08
67	61000	2.25	5.3E-07
79	60000	1.54	5.4E-07
87	60000	.34	6.6E-08
92	60000	.23	4.1E-08
93	60000	.83	1.9E-07
94	60000	1.08	2.9E-07
99	60000	.09	1.2E-08
109	59800	.72	1.4E-07
134	57300	.75	1.4E-07
135	57200	.78	1.7E-07
145	56200	.92	2.3E-07
163	54400	.72	1.6E-07
165	54200	.38	7.4E-08
184	52300	1.38	2.7E-07
200	50700	.62	1.2E-07
205	50200	1.34	2.9E-07
214	49300	.42	6.8E-08

304	40300	.77	1.4E-07
188	60000	.69	6.9E-08
117	60000	.67	1.0E-07
122	60000	.33	4.8E-08
124	60000	.16	1.8E-08
131	60000	.10	1.4E-08
132	60000	1.38	2.6E-07
133	60000	.04	4.6E-09
141	60000	.07	8.3E-09
149	60000	.36	2.2E-07
152	60000	.41	5.0E-08
156	60000	.08	1.2E-08
162	60000	.10	1.3E-08
167	60000	.28	3.5E-08
190	59000	.54	1.1E-07
191	57900	.43	6.8E-08
385	38500	.76	1.7E-07
259	51250	1.18	2.7E-07
271	50275	.78	2.2E-07
174	60000	.02	3.1E-09
175	60000	.13	2.1E-08
176	60000	2.41	1.1E-06
178	60000	.35	5.5E-08
201	59482	.85	2.0E-07
373	41282	.77	1.9E-07
187	60000	.16	2.7E-08
202	60000	.78	1.2E-07
209	60000	.64	7.7E-08
214	60000	.27	5.0E-08
213	60000	.57	1.0E-07
219	60000	.11	1.3E-08
220	60000	.35	6.1E-08
268	56121	.87	1.6E-07
224	50000	.73	7.0E-08
372	45296	1.22	3.8E-07
225	60000	.61	1.0E-07
227	60000	1.85	2.4E-07
228	60000	.15	3.0E-09
244	58900	.55	1.1E-07
264	56900	.92	2.7E-07
349	48400	1.08	1.5E-07
369	46400	.58	1.2E-07
441	39200	.26	4.4E-08
461	37200	.71	1.7E-07
484	34900	.91	2.3E-07
237	60000	.47	1.4E-07
247	60000	.04	7.1E-09
248	60000	.01	2.0E-09
249	60000	.05	6.2E-09
251	60000	.10	1.5E-08
253	60000	.20	2.3E-08
267	60000	.29	4.9E-08
268	50000	.02	3.2E-09
272	60000	1.78	3.0E-07
275	60000	.81	1.3E-07

277	60000	.55	1.2E-07
282	60000	.63	9.9E-08
286	60000	.14	2.1E-08
288	60000	.56	9.3E-08
292	60000	.51	1.1E-07
295	60000	.43	7.0E-08
389	58700	.34	5.9E-08
315	58100	.66	1.3E-07
365	53100	.61	1.3E-07
392	50400	.68	1.1E-07
467	42900	.81	1.7E-07
300	60000	.79	9.2E-08
303	60000	.35	6.6E-08
331	57525	.84	1.7E-07
387	52492	1.24	3.0E-07
335	58032	1.95	3.9E-07
318	60000	.26	4.3E-08
320	60000	.12	2.4E-08
322	60000	.52	9.7E-08
325	60000	.97	1.2E-08
327	60000	.51	1.1E-07
399	52044	1.00	1.5E-07
483	44464	1.33	3.2E-07
333	60000	.64	1.1E-07
336	60000	.13	2.1E-08
339	60000	.69	1.3E-07
343	60000	.18	2.4E-08
384	55946	.68	1.2E-07
344	60000	.89	1.2E-08
348	60000	.81	1.8E-07
351	60000	.85	7.6E-08
352	60000	1.57	3.5E-07
358	60000	.24	4.0E-08
378	58900	1.62	5.0E-07
393	56600	.48	8.1E-08
418	54100	1.07	2.2E-07
437	52200	.83	1.6E-07
374	60000	.41	8.0E-08
395	57975	.79	1.3E-07
375	60000	1.32	1.7E-07
377	60000	.55	7.0E-08
388	60000	.22	3.0E-08
394	60000	.46	6.3E-08
397	60000	.94	2.6E-07
403	60000	.85	1.8E-08
409	51746	.55	7.5E-08
409	60000	1.06	3.2E-07
411	60000	.59	1.5E-07
412	60000	.62	1.6E-07
416	60000	.68	1.6E-07
417	60000	.25	4.0E-08
421	61000	.33	5.2E-08
477	54500	.40	6.8E-08
482	54000	.94	1.2E-07
427	60000	.59	1.0E-07

429	60000	.28	4.9E-08
438	60000	.15	2.1E-08
442	60000	.04	4.6E-09
450	60000	.53	9.2E-08
452	60000	.84	6.6E-09
463	60000	.72	1.4E-07
470	60000	.18	3.8E-06
478	60000	.89	1.3E-07
491	60000	.72	1.4E-07
496	60000	.51	6.5E-08

NUMBER OF SPECIAL INSPECTIONS CONDUCTED: 1
NUMBER OF STRUCTURAL MODIFICATIONS: 0
FINAL ACTUAL AVERAGE MODIFIED FATIGUE LIFE: 65752 HOURS
NUMBER OF AIRCRAFT MODIFIED IN SERVICE: 0
ESTIMATED ELEMENT FAILURE RATE: 8.13E-13/HR.

STRUCTURAL FAILURES

AIRCRAFT NO.	FLT. HOURS

RESIDUAL STRENGTH EQUALS FAIL-SAFE STRENGTH

AIRCRAFT NO.	FLT. HOURS

RANDOM NUMBER SEEDS

SEED(1) = 48218933359974
SEED(2) = 96128033944880
SEED(3) = 220154468773021
SEED(4) = 606151417888889
SEED(5) = 151625472131476
SEED(6) = 116973481986837
SEED(7) = 122048974588180
SEED(8) = 171069518689908
SEED(9) = 201462476746509
SEED(10) = 202149824342847

SERVICE DAMAGE AIRCRAFT NO. 415
CORROSION AIRCRAFT NO. 139
NON-EXPLORATORY DETECTION LEVEL AT 55656 MODIFICATION 6

ICPH =	0.	PCPH =	.060	RCPH =	.002	TIME =	55656
ICPH =	0.	PCPH =	.070	RCPH =	.003	TIME =	59026
ICPH =	0.	PCPH =	.073	RCPH =	.003	TIME =	63082
ICPH =	0.	PCPH =	.074	RCPH =	.004	TIME =	64733
ICPH =	0.	PCPH =	.079	RCPH =	.004	TIME =	67672
ICPH =	0.	PCPH =	.082	RCPH =	.005	TIME =	68572
ICPH =	0.	PCPH =	.094	RCPH =	.005	TIME =	72035
ICPH =	0.	PCPH =	.094	RCPH =	.006	TIME =	72188
ICPH =	0.	PCPH =	.106	RCPH =	.006	TIME =	75394
ICPH =	0.	PCPH =	.121	RCPH =	.006	TIME =	78454

CORROSION AIRCRAFT NO. 397

ICPH =	0.	PCPH =	.132	RCPH =	.006	TIME =	80283
ICPH =	0.	PCPH =	.133	RCPH =	.006	TIME =	80481
ICPH =	0.	PCPH =	.141	RCPH =	.007	TIME =	81502
ICPH =	0.	PCPH =	.214	RCPH =	.006	TIME =	87184

AIRCRAFT TYPE: HYBRID

NUMBER OF AIRCRAFT IN FLEET: 500 AIRCRAFT SERVICE LIFE: 60000 HOURS

STRUCTURAL ELEMENT: WNG-STR-LSC-0807

PREDICTED AVERAGE FATIGUE LIFE: 161460 HOURS ACTUAL AVERAGE FATIGUE LIFE: 84468 HOURS
FATIGUE-TEST LIFE: 123898 HOURS

NUMBER AND TIME TO INITIATION OF AIRCRAFT DEFECTS

	FIRST CRACK	CORROSION	SERVICE DAMAGE	PRODUCTION DEFECTS
OCCURRENCES	96	2	1	0
MIN(HRS)	481	42262	481	-----
MAX(HRS)	59822	45344	481	-----
AVG(HRS)	46610	43803	481	-----

NUMBER AND LENGTH OF CRACKS DETECTED AT EACH LEVEL OF INSPECTION

	A-LEVEL	B-LEVEL	C-LEVEL	D-LEVEL	SPECIAL
OCCURRENCES	1*	1	2	1	0
MIN(IN)	.77	1.00	.56	2.14	0.
MAX(IN)	1.38	1.00	1.25	2.14	0.
AVG(IN)	1.02	1.00	.91	2.14	0.

NUMBER AND AREA OF CORROSION DEFECTS DETECTED AT EACH LEVEL OF INSPECTION

	A-LEVEL	B-LEVEL	C-LEVEL	D-LEVEL	SPECIAL
OCCURRENCES	0	1	0	0	0
MIN(SQ.IN)	0.	2.87	0.	0.	0.
MAX(SQ.IN)	0.	2.87	0.	0.	0.
AVG(SQ.IN)	0.	2.87	0.	0.	0.

INSPECTION INTERVALS(HRS)					MOD NO	SAMPLE	TIME
INITIAL	50	375	1000	1600	0	30	
2	50	375	1125	2400	0	21	2200
3	50	375	1266	3600	0	15	4600
4	50	375	1424	5400	0	11	8200
5	50	375	1602	8100	0	8	13600
6	50	375	1802	12150	0	5	21700
7	50	375	2253	15188	0	7	33450
8	50	375	2816	18984	0	4	49038
9	50	375	3520	23730	0	5	71819
10	50	375	4399	29663	0	10	95565

CRACK LENGTHS AND CORRESPONDING CUMULATIVE PROBABILITY OF FAILURE

AIRCRAFT NO.	FLT. HOURS	CRACK LGT.	PROB. OF FAILURE

41	53506	1.21	3.3E-07
136	50376	.77	2.0E-07
1	60000	.61	1.1E-07
3	60000	.42	6.5E-08
5	60000	2.16	9.1E-07
9	60000	.73	1.4E-07
10	60000	.37	6.6E-08
15	60000	1.49	3.8E-07
19	60000	2.77	1.2E-06
21	60000	.18	2.6E-08
35	60000	1.55	2.0E-07
36	60000	2.11	3.9E-07
40	60000	.21	3.4E-08
46	60000	.33	6.2E-08
52	60000	.39	6.6E-08
155	52532	1.39	2.1E-07
61	60000	1.06	2.2E-07
68	60000	.26	4.2E-08
69	60000	.47	8.4E-08
81	60000	.52	8.8E-08
89	60000	.13	1.8E-08
91	60000	1.17	2.2E-07
158	53843	1.38	3.3E-07
94	60000	.27	4.8E-08
96	60000	.45	7.7E-08
120	60000	.20	3.3E-08
121	60000	.86	1.4E-07
124	60000	.18	2.1E-08
125	60000	.10	1.6E-08
182	54422	2.27	7.4E-07
129	60000	.74	1.1E-07
134	60000	.27	6.7E-08
264	47222	.88	1.6E-07
143	60000	.14	2.0E-08
144	60000	.53	1.1E-07
148	60000	.66	1.2E-07
194	57585	1.25	3.5E-07
173	59838	.97	1.9E-07
174	60000	1.54	3.9E-07
175	60000	.33	4.9E-08
181	60000	.04	7.6E-09
184	60000	.25	1.7E-08
396	40744	1.12	2.6E-07
204	60000	.29	4.8E-08
213	60000	.76	1.7E-07
217	60000	.31	5.5E-08
218	60000	.34	5.1E-08
228	60000	.11	1.5E-08
227	60000	1.50	4.2E-07
319	51504	1.22	2.7E-07
236	60000	.67	1.6E-07
240	60000	.23	4.0E-08
243	60000	1.01	2.8E-07
254	59833	.56	1.1E-07
253	60000	1.96	6.7E-07

299	55531	.46	2.6E-07
257	65000	1.93	3.7E-07
287	57752	.86	1.4E-07
266	60000	.72	1.4E-07
269	60000	2.81	6.3E-07
278	60000	.15	2.2E-08
307	60000	2.72	1.2E-06
313	60000	1.63	4.1E-07
315	60000	4.23	3.0E-06
429	49234	1.86	2.3E-07
324	60000	.52	4.0E-08
330	60000	1.24	2.7E-07
333	60000	.17	2.8E-08
334	60000	1.11	1.7E-07
336	60000	.10	1.3E-08
341	60000	1.24	2.4E-07
343	60000	.42	5.8E-08
352	60000	.72	1.3E-07
353	60000	.45	5.2E-08
369	60000	.67	1.5E-07
375	60000	.01	1.4E-09
389	60000	.41	6.0E-08
381	60000	.13	2.1E-08
394	60000	.47	8.9E-08
398	60000	.92	1.8E-07
486	60000	.67	9.5E-09
415	60000	4.26	4.5E-06
421	60000	2.20	3.2E-07
424	60000	.45	6.7E-08
427	60000	1.23	2.8E-07
440	60000	.09	1.0E-08
441	60000	.91	2.7E-07
448	60000	.04	5.3E-09
458	60000	1.07	2.5E-07
458	60000	1.44	2.0E-07
463	60000	.22	3.2E-08
479	60000	.67	1.1E-07
482	60000	.27	4.1E-08
487	60000	.85	1.5E-07
491	60000	1.17	2.4E-07
499	60000	.33	4.5E-08

NUMBER OF SPECIAL INSPECTIONS CONDUCTED: 0
NUMBER OF STRUCTURAL MODIFICATIONS: 6
FINAL ACTUAL AVERAGE MODIFIED FATIGUE LIFE: 84462 HOURS
NUMBER OF AIRCRAFT MODIFIED IN SERVICE: 5
ESTIMATED ELEMENT FAILURE RATE: 8.28E-13/HR.

STRUCTURAL FAILURES

AIRCRAFT NO.	FLT. HOURS

RESIDUAL STRENGTH EQUALS FAIL-SAFE STRENGTH

AIRCRAFT NO.	FLT. HOURS

AIRCRAFT TYPE: HYBRID

NUMBER OF AIRCRAFT IN FLEET: 500 AIRCRAFT SERVICE LIFE: 60000 HOURS

SUMMARY OF STRUCTURAL ELEMENT: WNG-STR-USC

NUMBER AND TIME TO INITIATION OF AIRCRAFT DEFECTS

	FIRST CRACK	CORROSION	SERVICE DAMAGE	PRODUCTION DEFECTS
OCCURRENCES	197	49	4	2
MIN(HRS)	7384	2723	7384	-----
MAX(HRS)	59903	59396	54353	-----
AVG(HRS)	47703	27753	37998	-----

NUMBER AND LENGTH OF CRACKS DETECTED AT EACH LEVEL OF INSPECTION

	A-LEVEL	B-LEVEL	C-LEVEL	D-LEVEL	SPECIAL
OCCURRENCES	0	26	9	61	17
MIN(IN)	0.	1.15	.79	.31	.87
MAX(IN)	0.	5.18	4.62	6.38	5.69
AVG(IN)	0.	2.77	2.01	2.39	2.4-

NUMBER AND AREA OF CORROSION DEFECTS DETECTED AT EACH LEVEL OF INSPECTION

	A-LEVEL	B-LEVEL	C-LEVEL	D-LEVEL	SPECIAL
OCCURRENCES	0	16	3	7	4
MIN(SQ.IN)	0.	2.55	-.21	1.21	11.56
MAX(SQ.IN)	0.	26.43	9.01	27.18	27.95
AVG(SQ.IN)	0.	9.47	5.91	11.87	19.04

INSPECTION INTERVALS(HRS)				
INITIAL	50	375	1000	4400
SHORTEST	50	375	1000	1600
LONGEST	50	375	5000	32000

NUMBER OF SPECIAL INSPECTIONS CONDUCTED: 21
NUMBER OF STRUCTURAL MODIFICATIONS: 10
NUMBER OF AIRCRAFT MODIFIED IN SERVICE: 6
ESTIMATED ELEMENT TYPE FAILURE RATE USING AVG: 0.30E+00/HR
ESTIMATED ELEMENT TYPE FAILURE RATE: 0.30E+00/HR.
SAMPLE CRK. LGT. MEAN(IN) 2.32 SAMPLE STD. DEV. 1.435
CRK. LGT. VS PROBABILITY CURVE FIT CONST: A = -13.675425581819I S = .4156812694472

STRUCTURAL FAILURES			RESIDUAL STRENGTH EQUALS FAIL-SAFE STRENGTH		
AIRCRAFT NO.	FLT. HOURS	STR. NO.	AIRCRAFT NO.	FLT. HOURS	STR. NO.

AVERAGE FLIGHT CRACKS	1.405	1.405	.218	.818	.649
AVERAGE PRESSURE CRACKS	.561	.561	.471	.471	.448

TABLE 17. DEMONSTRATION RESULTS FOR WING - STRINGER, FORWARD

	Defects Per Million Flight Hours	
	SAIFE	MRR/SDR
Crack Detected		
Preflight	0.13	0.21
Service	1.00	0.71
Phase	0.80	1.04
Overhaul	0.87	1.69
Special	0.00	1.04
Total	2.80	4.69
Corrosion Detected		
Preflight	0.53	0.00
Service	1.00	0.31
Phase	0.40	0.00
Overhaul	0.87	0.10
Special	0.00	0.00
Total	2.80	0.41
Fail-Safe Damage	0.00	0.07
Failures	0.00	----
Service Damage	0.03	0.00
Production Defects	0.00	0.02

AIRCRAFT TYPE: HYBRID

NUMBER OF AIRCRAFT IN FLEET: 500 AIRCRAFT SERVICE LIFE: 60000 HOURS

SUMMARY OF STRUCTURAL ELEMENT: WING-STR-LSF

NUMBER AND TIME TO INITIATION OF AIRCRAFT DEFECTS

	FIRST CRACK	CORROSION	SERVICE DAMAGE	PRODUCTION DEFECTS
OCCURRENCES	198	36	3	0
MIN(HRS)	4586	679	4586	-----
MAX(HRS)	59840	58938	59378	-----
AVG(HRS)	46095	31003	26520	-----

NUMBER AND LENGTH OF CRACKS DETECTED AT EACH LEVEL OF INSPECTION

	A-LEVEL	B-LEVEL	C-LEVEL	D-LEVEL	SPECIAL
OCCURRENCES	2	9	5	1	0
MIN(IN)	.81	.49	.56	.65	0.
MAX(IN)	1.08	.91	.71	.65	0.
AVG(IN)	.95	.68	.62	.65	0.

NUMBER AND AREA OF CORROSION DEFECTS DETECTED AT EACH LEVEL OF INSPECTION

	A-LEVEL	B-LEVEL	C-LEVEL	D-LEVEL	SPECIAL
OCCURRENCES	8	5	5	1	0
MIN(SQ.IN)	2.08	2.20	3.23	6.53	0.
MAX(SQ.IN)	10.86	11.73	14.25	6.53	0.
AVG(SQ.IN)	5.32	5.47	7.56	6.53	0.
INSPECTION INTERVALS(HRS)					
INITIAL	50	375	1000	6400	
SHORTEST	50	375	1000	1600	
LONGEST	50	375	6667	32000	

NUMBER OF SPECIAL INSPECTIONS CONDUCTED: 0
NUMBER OF STRUCTURAL MODIFICATIONS: 4
NUMBER OF AIRCRAFT MODIFIED IN SERVICE: 0
ESTIMATED ELEMENT TYPE FAILURE RATE USING AVG: 9.262E-13/HR
ESTIMATED ELEMENT TYPE FAILURE RATE: 4.07E-12/HR.
SAMPLE CRK. LGT. MEAN(IN) .39 SAMPLE STD. DEV. .317
CRK. LGT. VS PROBABILITY CURVE FIT CONST: A = -7.99173103476 n = 1.49421431414

STRUCTURAL FAILURES			RESIDUAL STRENGTH EQUALS FAIL-SAFE STRENGTH		
AIRCRAFT NO.	FLT. HOURS	STA. NO.	AIRCRAFT NO.	FLT. HOURS	STA. NO.

AVERAGE FLIGHT CRACKS	1.605	1.605	.818	.818	.649
AVERAGE PRESSURE CRACKS	.561	.561	.471	.471	.448

AIRCRAFT TYPE: HYBRID

NUMBER OF AIRCRAFT IN FLEET: 500 AIRCRAFT SERVICE LIFE: 60000 HOURS

SUMMARY OF STRUCTURAL ELEMENT: WNG-STR-USF

NUMBER AND TIME TO INITIATION OF AIRCRAFT DEFECTS

	FIRST CRACK	CORROSION	SERVICE DAMAGE	PRODUCTION DEFECTS
OCCURRENCES	183	37	7	0
MIN(HRS)	8449	1601	9450	-----
MAX(HRS)	59597	59102	43039	-----
AVG(HRS)	33920	29022	26244	-----

NUMBER AND LENGTH OF CRACKS DETECTED AT EACH LEVEL OF INSPECTION

	A-LEVEL	B-LEVEL	C-LEVEL	D-LEVEL	SPECIAL
OCCURRENCES	0	6	7	12	0
MIN(IN)	0.	.70	.75	.80	0.
MAX(IN)	0.	3.05	3.47	1.89	0.
AVG(IN)	0.	1.44	1.44	1.19	0.

NUMBER AND AREA OF CORROSION DEFECTS DETECTED AT EACH LEVEL OF INSPECTION

	A-LEVEL	B-LEVEL	C-LEVEL	D-LEVEL	SPECIAL
OCCURRENCES	0	10	1	12	0
MIN(SQ.IN)	0.	1.78	5.44	3.78	0.
MAX(SQ.IN)	0.	14.22	5.44	57.12	0.
AVG(SQ.IN)	0.	7.49	5.44	18.54	0.
INSPECTION INTERVALS(HRS)					
INITIAL	50	375	1000	6400	
SHORTEST	50	375	1000	1600	
LONGEST	50	375	6667	32000	

NUMBER OF SPECIAL INSPECTIONS CONDUCTED: 0
NUMBER OF STRUCTURAL MODIFICATIONS: 2
NUMBER OF AIRCRAFT MODIFIED IN SERVICE: 663
ESTIMATED ELEMENT TYPE FAILURE RATE USING AVG: 0.00E+00/HR
ESTIMATED ELEMENT TYPE FAILURE RATE: 0.00E+00/HR.
SAMPLE CRK. LGT. MEAN(IN) .95 SAMPLE STD. DEV. .429
CRK. LGT. VS PROBABILITY CURVE FIT CONST: A = -13.675825818191 M = .415481204472

STRUCTURAL FAILURES			RESIDUAL STRENGTH EQUALS FAIL-SAFE STRENGTH		
AIRCRAFT NO.	FLT. HOURS	STA. NO.	AIRCRAFT NO.	FLT. HOURS	STA. NO.

AVERAGE FLIGHT CRACKS	1.605	1.605	.818	.818	.649
AVERAGE PRESSURE CRACKS	.561	.561	.471	.471	.448

TABLE 18. DEMONSTRATION RESULTS FOR WING - CENTER SECTION STRINGER, AFT (WSC-STR-AFT & WSC-STS-AFT)

	Defects Per Million Flight Hours	
	SAIFE (*)	MRR/SDR
Crack Detected		
Preflight	0.00 (0.00)	0.00
Service	0.00 (0.00)	0.00
Phase	0.53 (0.53)	0.00
Overhaul	0.27 (0.27)	0.06
Special	0.27 (0.27)	0.06
Total	1.07 (1.07)	0.12
Corrosion Detected		
Preflight	0.00 (0.00)	0.00
Service	0.00 (0.00)	0.03
Phase	0.27 (0.07)	0.03
Overhaul	0.26 (0.13)	0.00
Special	0.13 (0.13)	0.08
Total	0.66 (0.33)	0.14
Fail-Safe Damage	0.00 (0.00)	0.00
Failures	0.00 (0.00)	----
Service Damage	0.00 (0.00)	0.00
Production Defects	0.00 (0.00)	0.00

(*) WSC-STS-AFT only

AIRCRAFT TYPE: HYBRID

NUMBER OF AIRCRAFT IN FLEET: 500 AIRCRAFT SERVICE LIFE: 60000 HOURS

SUMMARY OF STRUCTURAL ELEMENT: WSC-STR-LSA

NUMBER AND TIME TO INITIATION OF AIRCRAFT DEFECTS

	FIRST CRACK	CORROSION	SERVICE DAMAGE	PRODUCTION DEFECTS
OCCURRENCES	5	15	0	0
MIN(HRS)	32675	4738	0	-----
MAX(HRS)	51597	55272	0	-----
AVG(HRS)	41725	33307	0	-----

NUMBER AND LENGTH OF CRACKS DETECTED AT EACH LEVEL OF INSPECTION

	A-LEVEL	B-LEVEL	C-LEVEL	D-LEVEL	SPECIAL
OCCURRENCES	0	0	0	0	0
MIN(IN)	0.	0.	0.	0.	0.
MAX(IN)	0.	0.	0.	0.	0.
AVG(IN)	0.	0.	0.	0.	0.

NUMBER AND AREA OF CORROSION DEFECTS DETECTED AT EACH LEVEL OF INSPECTION

	A-LEVEL	B-LEVEL	C-LEVEL	D-LEVEL	SPECIAL
OCCURRENCES	0	0	3	2	0
MIN(SQ.IN)	0.	0.	7.39	5.68	0.
MAX(SQ.IN)	0.	0.	24.41	22.14	0.
AVG(SQ.IN)	0.	0.	14.33	13.91	0.
INSPECTION INTERVALS(HRS)					
INITIAL	50	375	1000	6400	
SHORTEST	50	375	1000	6400	
LONGEST	50	375	5000	32000	

NUMBER OF SPECIAL INSPECTIONS CONDUCTED: 0
NUMBER OF STRUCTURAL MODIFICATIONS: 1
NUMBER OF AIRCRAFT MODIFIED IN SERVICE: 0
ESTIMATED ELEMENT TYPE FAILURE RATE USING AVG: 3.23E-14/HR
ESTIMATED ELEMENT TYPE FAILURE RATE: 3.31E-14/HR.
SAMPLE CRK. LGT. MEAN(IN) .56 SAMPLE STD. DEV. .267
CRK. LGT. VS PROBABILITY CURVE FIT CONST: A = -7.472775657984 B = .853727396484

STRUCTURAL FAILURES			RESIDUAL STRENGTH EQUALS FAIL-SAFE STRENGTH		
AIRCRAFT NO.	FLT. HOURS	STA. NO.	AIRCRAFT NO.	FLT. HOURS	STA. NO.

AVERAGE FLIGHT CRACKS	1.605	1.605	.818	.818	.649
AVERAGE PRESSURE CRACKS	.561	.561	.471	.471	.448

AIRCRAFT TYPE: HYBRID

NUMBER OF AIRCRAFT IN FLEET: 500 AIRCRAFT SERVICE LIFE: 60000 HOURS

SUMMARY OF STRUCTURAL ELEMENT: WSC-STS-LSA

NUMBER AND TIME TO INITIATION OF AIRCRAFT DEFECTS

	FIRST CRACK	CORROSION	SERVICE DAMAGE	PRODUCTION DEFECTS
OCCURRENCES	84	15	0	1
MIN(HRS)	856	4579	0	-----
MAX(HRS)	59805	54132	0	-----
AVG(HRS)	45563	24578	0	-----

NUMBER AND LENGTH OF CRACKS DETECTED AT EACH LEVEL OF INSPECTION

	A-LEVEL	B-LEVEL	C-LEVEL	D-LEVEL	SPECIAL
OCCURRENCES	0	0	8	4	4
MIN(IN)	0.	0.	.41	.70	.65
MAX(IN)	0.	0.	1.84	2.36	2.67
AVG(IN)	0.	0.	1.83	1.44	1.34

NUMBER AND AREA OF CORROSION DEFECTS DETECTED AT EACH LEVEL OF INSPECTION

	A-LEVEL	B-LEVEL	C-LEVEL	D-LEVEL	SPECIAL
OCCURRENCES	0	0	1	2	2
MIN(SQ.IN)	0.	0.	3.05	12.20	31.33
MAX(SQ.IN)	0.	0.	3.05	24.12	38.04
AVG(SQ.IN)	0.	0.	3.05	18.16	34.69
INSPECTION INTERVALS(HRS)					
INITIAL	50	375	1000	4000	
SHORTEST	50	375	1000	4000	
LONGEST	50	375	5000	32000	

NUMBER OF SPECIAL INSPECTIONS CONDUCTED: [illegible]
NUMBER OF STRUCTURAL MODIFICATIONS: 2
NUMBER OF AIRCRAFT MODIFIED IN SERVICE: 35
ESTIMATED ELEMENT TYPE FAILURE RATE USING AVG: 1.33E-12/HR
ESTIMATED ELEMENT TYPE FAILURE RATE: 1.48E-12/HR.
SAMPLE CRK. LGT. MEAN(IN) [illegible] SAMPLE STD. DEV. .655
CRK. LGT. VS PROBABILITY CURVE FIT CONST: A = -7.541455923759 - B = .7e6549--6669

STRUCTURAL FAILURES		
AIRCRAFT NO.	FLT. HOURS	STA. NO.

RESIDUAL STRENGTH EQUALS FAIL-SAFE STRENGTH		
AIRCRAFT NO.	FLT. HOURS	STA. NO.

AVERAGE FLIGHT CRACKS 1.695 1.695 .916 .916 .649
AVERAGE PRESSURE CRACKS .561 .561 .471 .471 .448

TABLE 19. DEMONSTRATION RESULTS FOR WING - CENTER SECTION STRINGER, CENTER

	Defects Per Million Flight Hours	
	SAIFE	MRR/SDR
Crack Detected		
Preflight	0.00	0.04
Service	0.00	0.04
Phase	0.00	0.04
Overhaul	0.00	0.40
Special	0.00	0.18
Total	0.00	0.70
Corrosion Detected		
Preflight	0.00	0.08
Service	0.00	0.30
Phase	0.00	0.00
Overhaul	0.67	0.93
Special	0.00	0.46
Total	0.67	1.77
Fail-Safe Damage	0.00	0.17
Failures	0.00	----
Service Damage	0.00	0.00
Production Defects	0.00	0.04

AIRCRAFT TYPE: HYBRID

NUMBER OF AIRCRAFT IN FLEET: 500 AIRCRAFT SERVICE LIFE: 60000 HOURS

SUMMARY OF STRUCTURAL ELEMENT: WSC-STR-LSC

NUMBER AND TIME TO INITIATION OF AIRCRAFT DEFECTS

	FIRST CRACK	CORROSION	SERVICE DAMAGE	PRODUCTION DEFECTS
OCCURRENCES	12	33	0	0
MIN(HRS)	11816	5670	0	-----
MAX(HRS)	55803	58742	0	-----
AVG(HRS)	41561	32778	0	-----

NUMBER AND LENGTH OF CRACKS DETECTED AT EACH LEVEL OF INSPECTION

	A-LEVEL	B-LEVEL	C-LEVEL	D-LEVEL	SPECIAL
OCCURRENCES	0	0	0	0	0
MIN(IN)	0.	0.	0.	0.	0.
MAX(IN)	0.	0.	0.	0.	0.
AVG(IN)	0.	0.	0.	0.	0.

NUMBER AND AREA OF CORROSION DEFECTS DETECTED AT EACH LEVEL OF INSPECTION

	A-LEVEL	B-LEVEL	C-LEVEL	D-LEVEL	SPECIAL
OCCURRENCES	0	0	0	18	0
MIN(SQ.IN)	0.	0.	0.	5.37	0.
MAX(SQ.IN)	0.	0.	0.	21.14	0.
AVG(SQ.IN)	0.	0.	0.	11.66	0.

INSPECTION INTERVALS(HRS)				
INITIAL	50	375	1000	4800
SHORTEST	50	375	1000	4500
LONGEST	50	375	6667	32000

NUMBER OF SPECIAL INSPECTIONS CONDUCTED: 0
NUMBER OF STRUCTURAL MODIFICATIONS: 0
NUMBER OF AIRCRAFT MODIFIED IN SERVICE: 0
ESTIMATED ELEMENT TYPE FAILURE RATE USING AVG: 2.90E-14/HR
ESTIMATED ELEMENT TYPE FAILURE RATE: 2.69E-14/HR
SAMPLE CRK. LGT. MEAN(IN) .74 SAMPLE STD. DEV. .594
CRK. LGT. VS PROBABILITY CURVE FIT COAST: A = -6.391599819214 B = .899149862228

STRUCTURAL FAILURES			RESIDUAL STRENGTH EQUALS FAIL-SAFE STRENGTH		
AIRCRAFT NO.	FLT. HOURS	STR. NO.	AIRCRAFT NO.	FLT. HOURS	STR. NO.

AVERAGE FLIGHT CRACKS	1.605	1.605	1.605	1.605	.649
AVERAGE PRESSURE CRACKS	.561	.561	.471	.471	.448

TABLE 20. DEMONSTRATION RESULTS FOR WING - CENTER SECTION STRINGER, FORWARD

	Defects Per Million Flight Hours	
	SAIFE	MRR/SDR
Crack Detected		
Preflight	0.00	0.00
Service	0.00	0.25
Phase	0.00	0.45
Overhaul	0.00	0.14
Special	0.00	2.76
Total	0.00	3.60
Corrosion Detected		
Preflight	0.00	0.00
Service	0.00	0.03
Phase	0.33	0.00
Overhaul	0.73	0.05
Special	0.00	0.03
Total	1.06	0.11
Fail-Safe Damage	0.00	0.11
Failures	0.00	----
Service Damage	0.00	0.00
Production Defects	0.00	0.00

AIRCRAFT TYPE: MYHWID

NUMBER OF AIRCRAFT IN FLEET: 500 AIRCRAFT SERVICE LIFE: 60000 HOURS

SUMMARY OF STRUCTURAL ELEMENT: WSC-STR-LSF

NUMBER AND TIME TO INITIATION OF AIRCRAFT DEFECTS

	FIRST CRACK	CORROSION	SERVICE DAMAGE	PRODUCTION DEFECTS
OCCURRENCES	7	32	0	0
MIN(HRS)	27471	1226	0	-----
MAX(HRS)	57673	57378	0	-----
AVG(HRS)	45333	26702	0	-----

NUMBER AND LENGTH OF CRACKS DETECTED AT EACH LEVEL OF INSPECTION

	A-LEVEL	B-LEVEL	C-LEVEL	D-LEVEL	SPECIAL
OCCURRENCES	0	0	0	0	0
MIN(IN)	0.	0.	0.	0.	0.
MAX(IN)	0.	0.	0.	0.	0.
AVG(IN)	0.	0.	0.	0.	0.

NUMBER AND AREA OF CORROSION DEFECTS DETECTED AT EACH LEVEL OF INSPECTION

	A-LEVEL	B-LEVEL	C-LEVEL	D-LEVEL	SPECIAL
OCCURRENCES	0	0	5	11	0
MIN(SQ.IN)	0.	0.	4.16	2.53	0.
MAX(SQ.IN)	0.	0.	13.21	39.64	0.
AVG(SQ.IN)	0.	0.	8.94	17.65	0.

INSPECTION INTERVALS(HRS)				
INITIAL	50	375	1000	4800
SHORTEST	50	375	1000	4800
LONGEST	50	375	6667	32000

NUMBER OF SPECIAL INSPECTIONS CONDUCTED: 0
NUMBER OF STRUCTURAL MODIFICATIONS: 2
NUMBER OF AIRCRAFT MODIFIED IN SERVICE: 38
ESTIMATED ELEMENT TYPE FAILURE RATE USING AVG: 5.87E-15/HR
ESTIMATED ELEMENT TYPE FAILURE RATE: 4.37E-15/HR.
SAMPLE CRK. LGT. MEAN(IN) .35 SAMPLE STD. DEV. .244
CRK. LGT. VS PROBABILITY CURVE FIT CONST: A = -8.723612335132 B = 1.718766323536

STRUCTURAL FAILURES			RESIDUAL STRENGTH EQUALS FAIL-SAFE STRENGTH		
AIRCRAFT NO.	FLT. HOURS	STA. NO.	AIRCRAFT NO.	FLT. HOURS	STA. NO.

AVERAGE FLIGHT CRACKS	1.605	1.605	.-15	.-18	.0-9
AVERAGE PRESSURE CRACKS	.561	.561	.471	.471	.448

TABLE 21. DEMONSTRATION RESULTS FOR WING - CENTER SECTION SPANWISE BEAM, AFT (WSC-SWB-AFT & WSC-SWS-AFT)

	Defects Per Million Flight Hours	
	SAIFE (*)	MRR/SDR
Crack Detected		
Preflight	0.00 (0.00)	0.04
Service	0.00 (0.00)	0.12
Phase	0.20 (0.20)	0.04
Overhaul	1.93 (1.93)	0.28
Special	0.13 (0.13)	0.12
Total	2.26 (2.26)	0.60
Corrosion Detected		
Preflight	0.00 (0.00)	0.00
Service	0.00 (0.00)	0.04
Phase	0.20 (0.00)	0.00
Overhaul	0.13 (0.13)	0.04
Special	0.00 (0.00)	0.09
Total	0.33 (0.13)	0.17
Fail-Safe Damage	0.00 (0.00)	0.00
Failures	0.00 (0.00)	----
Service Damage	0.07 (0.07)	0.00
Production Defects	0.00 (0.00)	0.00

(*) WSC-SWS-AFT only

AIRCRAFT TYPE: HYBRID

NUMBER OF AIRCRAFT IN FLEET: 500 AIRCRAFT SERVICE LIFE: 60000 HOURS

SUMMARY OF STRUCTURAL ELEMENT: WSC-SWB-AFT

NUMBER AND TIME TO INITIATION OF AIRCRAFT DEFECTS

	FIRST CRACK	CORROSION	SERVICE DAMAGE	PRODUCTION DEFECTS
OCCURRENCES	7	4	2	0
MIN(HRS)	27515	7589	27515	-----
MAX(HRS)	54563	46126	32580	-----
AVG(HRS)	43111	28373	30048	-----

NUMBER AND LENGTH OF CRACKS DETECTED AT EACH LEVEL OF INSPECTION

	A-LEVEL	B-LEVEL	C-LEVEL	D-LEVEL	SPECIAL
OCCURRENCES	0	0	0	0	0
MIN(IN)	0.	0.	0.	0.	0.
MAX(IN)	0.	0.	0.	0.	0.
AVG(IN)	0.	0.	0.	0.	0.

NUMBER AND AREA OF CORROSION DEFECTS DETECTED AT EACH LEVEL OF INSPECTION

	A-LEVEL	B-LEVEL	C-LEVEL	D-LEVEL	SPECIAL
OCCURRENCES	0	0	3	0	0
MIN(SQ.IN)	0.	0.	1.44	0.	0.
MAX(SQ.IN)	0.	0.	15.64	0.	0.
AVG(SQ.IN)	0.	0.	6.74	0.	0.

INSPECTION INTERVALS(HRS)				
INITIAL	50	375	1000	3200
SHORTEST	50	375	1000	3200
LONGEST	50	375	3129	41041

NUMBER OF SPECIAL INSPECTIONS CONDUCTED: 0
NUMBER OF STRUCTURAL MODIFICATIONS: 0
NUMBER OF AIRCRAFT MODIFIED IN SERVICE: 0
ESTIMATED ELEMENT TYPE FAILURE RATE USING AVG: 1.5HE-14/HR
ESTIMATED ELEMENT TYPE FAILURE RATE: 1.20E-14/HR.
SAMPLE CRK. LGT. MEAN(IN) .45 SAMPLE STD. DEV. .313
CRK. LGT. VS PROBABILITY CURVE FIT COAST: A = -2.324376950762 B = 1.379117e9b26e

STRUCTURAL FAILURES			RESIDUAL STRENGTH EQUALS FAIL-SAFE STRENGTH		
AIRCRAFT NO.	FLT. HOURS	STA. NO.	AIRCRAFT NO.	FLT. HOURS	STA. NO.

AVERAGE FLIGHT CRACKS	1.605	1.605	.14	.14	.649
AVERAGE PRESSURE CRACKS	.561	.561	.471	.471	.445

AIRCRAFT TYPE: HYBRID

NUMBER OF AIRCRAFT IN FLEET: 500 AIRCRAFT SERVICE LIFE: 60000 HOURS

SUMMARY OF STRUCTURAL ELEMENT: WSC-SWS-AFT

NUMBER AND TIME TO INITIATION OF AIRCRAFT DEFECTS

	FIRST CRACK	CORROSION	SERVICE DAMAGE	PRODUCTION DEFECTS
OCCURRENCES	181	2	2	0
MIN(HRS)	9196	9656	9146	-----
MAX(HRS)	59914	28726	13478	-----
AVG(HRS)	45771	19192	11333	-----

NUMBER AND LENGTH OF CRACKS DETECTED AT EACH LEVEL OF INSPECTION

	A-LEVEL	B-LEVEL	C-LEVEL	D-LEVEL	SPECIAL
OCCURRENCES	0	0	3	29	2
MIN(IN)	0.	0.	.75	.20	1.17
MAX(IN)	0.	0.	2.64	2.50	1.54
AVG(IN)	0.	0.	1.59	1.09	1.35

NUMBER AND AREA OF CORROSION DEFECTS DETECTED AT EACH LEVEL OF INSPECTION

	A-LEVEL	B-LEVEL	C-LEVEL	D-LEVEL	SPECIAL
OCCURRENCES	0	0	0	2	0
MIN(SQ.IN)	0.	0.	0.	.39	0.
MAX(SQ.IN)	0.	0.	0.	36.34	0.
AVG(SQ.IN)	0.	0.	0.	22.33	0.

INSPECTION INTERVALS(HRS)

INITIAL	50	375	1000	1000
SHORTEST	50	375	1000	1000
LONGEST	50	375	3000	2373

NUMBER OF SPECIAL INSPECTIONS CONDUCTED: 1
NUMBER OF STRUCTURAL MODIFICATIONS: 2
NUMBER OF AIRCRAFT MODIFIED IN SERVICE: 444
ESTIMATED ELEMENT TYPE FAILURE RATE: [illegible]
ESTIMATED ELEMENT TYPE FAILURE RATE: [illegible]
SAMPLE CRK. LGT. MEAN(IN) 1.37 SAMP. STD. DEV. 1.675
CRK. LGT. VS PROBABILITY CURVE FIT COEFFS: [illegible]

STRUCTURAL FAILURES			RESIDUAL STRENGTH EQUALS FAIL-SAFE STRENGTH		
AIRCRAFT NO.	FLT. HOURS	STR. LVL	AIRCRAFT NO.	FLT. HOURS	STR. NO.

AVERAGE FLIGHT CRACKS 1.605 [illegible]
AVERAGE PRESSURE CRACKS .541 [illegible]

TABLE 22. DEMONSTRATION RESULTS FOR WING - CENTER SECTION SPANWISE BEAM, CENTER

	Defects Per Million Flight Hours	
	SAIFE	MRR/SDR
Crack Detected		
Preflight	0.00	0.00
Service	0.00	0.02
Phase	0.00	0.02
Overhaul	0.00	0.19
Special	0.00	0.00
Total	0.00	0.23
Corrosion Detected		
Preflight	0.00	0.00
Service	0.00	0.00
Phase	0.00	0.09
Overhaul	0.13	0.00
Special	0.00	0.00
Total	0.13	0.09
Fail-Safe Damage	0.00	0.00
Failures	0.00	----
Service Damage	0.00	0.00
Production Defects	0.00	0.00

AIRCRAFT TYPE: HYBRID

NUMBER OF AIRCRAFT IN FLEET: [illegible] AIRCRAFT SERVICE LIFE: 60000 HOURS

SUMMARY OF STRUCTURAL ELEMENT: WSC-SWB-CEN

NUMBER AND TIME TO INITIATION OF AIRCRAFT DEFECTS

	FIRST CRACK	CORROSION	SERVICE DAMAGE	PRODUCTION DEFECTS
OCCURRENCES	10	9	4	0
MIN(HRS)	4095	16206	4095	-----
MAX(HRS)	58750	57314	18429	-----
AVG(HRS)	33115	36449	10414	-----

NUMBER AND LENGTH OF CRACKS DETECTED AT EACH LEVEL OF INSPECTION

	A-LEVEL	B-LEVEL	C-LEVEL	D-LEVEL	SPECIAL
OCCURRENCES	0	0	0	0	0
MIN(IN)	0.	0.	0.	0.	0.
MAX(IN)	0.	0.	0.	0.	0.
AVG(IN)	0.	0.	0.	0.	0.

NUMBER AND AREA OF CORROSION DEFECTS DETECTED AT EACH LEVEL OF INSPECTION

	A-LEVEL	B-LEVEL	C-LEVEL	D-LEVEL	SPECIAL
OCCURRENCES	0	0	0	2	0
MIN(SQ.IN)	0.	0.	0.	2.94	0.
MAX(SQ.IN)	0.	0.	0.	3.43	0.
AVG(SQ.IN)	0.	0.	0.	3.19	0.

INSPECTION INTERVALS(HRS)				
INITIAL	50	375	1000	4800
SHORTEST	50	375	1000	4800
LONGEST	50	375	6667	32000

NUMBER OF SPECIAL INSPECTIONS CONDUCTED: 0
NUMBER OF STRUCTURAL MODIFICATIONS: 0
NUMBER OF AIRCRAFT MODIFIED IN SERVICE: 0
ESTIMATED ELEMENT TYPE FAILURE RATE USING AVG: 1.54E-13/HR
ESTIMATED ELEMENT TYPE FAILURE RATE: 1.38E-13/HR.
SAMPLE CRK. LGT. MEAN(IN) .30 SAMPLE STD. DEV. .30
CRK. LGT. VS PROBABILITY CURVE FIT CONST: A = -7.165066249817 B = 1.165770846146

STRUCTURAL FAILURES			RESIDUAL STRENGTH EQUALS FAIL-SAFE STRENGTH		
AIRCRAFT NO.	FLT. HOURS	STA. NO.	AIRCRAFT NO.	FLT. HOURS	STA. NO.

AVERAGE FLIGHT CRACKS	1.605	1.605	.618	.618	.618
AVERAGE PRESSURE CRACKS	.561	.561	.471	.471	.446

TABLE 23. DEMONSTRATION RESULTS FOR WING - CENTER SECTION - SPANWISE BEAM, FORWARD

	Defects Per Million Flight Hours	
	SAIFE	MRR/SDR
Crack Detected		
Preflight	0.00	0.00
Service	0.00	0.24
Phase	0.00	2.29
Overhaul	0.00	0.07
Special	0.00	1.24
Total	0.00	1.74
Corrosion Detected		
Preflight	0.00	0.00
Service	0.00	0.13
Phase	0.07	0.00
Overhaul	0.00	0.00
Special	0.00	0.00
Total	0.07	0.13
Fail-Safe Damage	0.00	0.09
Failures	0.00	----
Service Damage	0.00	0.09
Production Defects	0.00	0.00

AIRCRAFT TYPE: HYBRID

NUMBER OF AIRCRAFT IN FLEET: [illegible] AIRCRAFT SERVICE LIFE: 60000 HOURS

SUMMARY OF STRUCTURAL ELEMENT: WSC-SWB-FWD

NUMBER AND TIME TO INITIATION OF AIRCRAFT DEFECTS

	FIRST CRACK	CORROSION	SERVICE DAMAGE	PRODUCTION DEFECTS
OCCURRENCES	8	6	4	0
MIN(HRS)	17970	28975	17970	-----
MAX(HRS)	56723	59110	56723	-----
AVG(HRS)	43033	44121	35308	-----

NUMBER AND LENGTH OF CRACKS DETECTED AT EACH LEVEL OF INSPECTION

	A-LEVEL	B-LEVEL	C-LEVEL	D-LEVEL	SPECIAL
OCCURRENCES	0	0	0	0	0
MIN(IN)	0.	0.	0.	0.	0.
MAX(IN)	0.	0.	0.	0.	0.
AVG(IN)	0.	0.	0.	0.	0.

NUMBER AND AREA OF CORROSION DEFECTS DETECTED AT EACH LEVEL OF INSPECTION

	A-LEVEL	B-LEVEL	C-LEVEL	D-LEVEL	SPECIAL
OCCURRENCES	0	0	1	0	0
MIN(SQ.IN)	0.	0.	4.00	0.	0.
MAX(SQ.IN)	0.	0.	4.00	0.	0.
AVG(SQ.IN)	0.	0.	4.00	0.	0.
INSPECTION INTERVALS(HRS)					
INITIAL	50	375	1000	4800	
SHORTEST	50	375	1000	4800	
LONGEST	50	375	6667	32000	

NUMBER OF SPECIAL INSPECTIONS CONDUCTED: 0
NUMBER OF STRUCTURAL MODIFICATIONS: 0
NUMBER OF AIRCRAFT MODIFIED IN SERVICE: 0
ESTIMATED ELEMENT TYPE FAILURE RATE USING AVG: 7.3[illegible]E-14/HR
ESTIMATED ELEMENT TYPE FAILURE RATE: 5.8[illegible]E-14/HR.
SAMPLE CRK. LGT. MEAN(IN) .45 SAMPLE STD. DEV. .[illegible]
CRK. LGT. VS PROBABILITY CURVE FIT CONSTS: A = -7.-3[illegible] - = 1.2461111555455

STRUCTURAL FAILURES

AIRCRAFT NO.	FLT. HOURS	STA. NO.

RESIDUAL STRENGTH EQUALS FAIL-SAFE STRENGTH

AIRCRAFT NO.	FLT. HOURS	STA. NO.

AVERAGE FLIGHT CRACKS 1.605 [illegible]
AVERAGE PRESSURE CRACKS .561 .561 .571 .571 .44[illegible]